ORDER NO. VRD9208M147

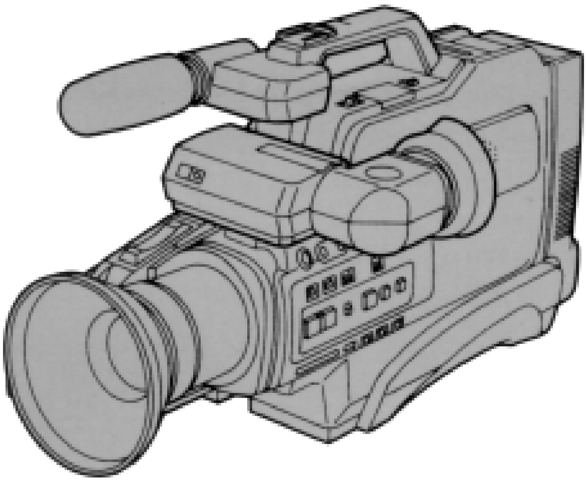
Service Manual

Panasonic S-VHS
VHS
PAL
625

Hi-Fi HQ

S-VHS Movie

NV-MS4E/B/A
NV-M9000EN
NV-M9900MC



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- **EXPLODED VIEWS & PARTS LIST\СБОРОЧНЫЕ ЧЕРТЕЖИ И СПИСКИ ЗАПАСНЫХ ЧАСТЕЙ**
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Panasonic

SPECIFICATIONS

ITEM	SPECIFICATION
POWER	Source: BATTERY; DC 12V Consumption; Recording mode; 9.3W (Battery operation)
VIDEO RECORDING SYSTEM	4 rotary heads, helical scanning system PAL
TAPE FORMAT	S-VHS/VHS Cassette Tape (Tape width 12.7mm)
TAPE SPEED	23.39mm/s Record/Playback Time 240min. with NV-E240 FF/REW Time less than 12min. with NV-E180
CAMERA	PICK-UP ELEMENT: CCD (Charge Coupled Device)
	STANDARD ILLUMINATION: 1,400 lux
	MINIMUM REQUIRED ILLUMINATION: 1 lux (Digital Gain Up Mode)
	LENS: 12 : 1 Power Zoom Lens with 2 zooming speeds and Digital AI Auto Focus; Focal Length 5.6 – 67mm F1.6 Auto Iris/Manual Ilis Filter Diameter 49mm
	IMAGE SENSOR: 1/3 inch CCD Image Sensor
	VIEW FINDER: 0.7″ Electric View Finder

ITEM	SPECIFICATION
VIDEO	HEADS: 4 rotary heads, 1 flging erase head
	OUTPUT: PHONO CONNECTOR; 1.0Vp-p 75Ω unbalanced S-VIDEO OUT Terminal; 1.0Vp-p 75Ω unbalanced
AUDIO	HEAD: 1 Stationary head (Normal Audio) 4 rotary heads; 2 cahnnels (Hi-Fi Sound-Stereo)
	INPUT: MIC IN (M3); – 70dB, 4.7kΩ unbalanced
	OUTPUT: PHONO CONNECTOR; – 8dB, 47kΩ loaded EARPHONE JACK (M3); – 28dB, 8Ω unbalanced
WEIGHT	Approx. 2.7kg (without Battery Pack)
DIMENSIONS	130(W) × 245(H) × 476(D)mm
STANDARD ACCESSORIES	1 pc. AC Adaptor 1 pc. Battery Pack 1 pc. Shoulder Strap 1 pc. AV Output Cable (NV-MS4E/A, NV-M9000EN, NV-M9900MC) 2 pcs. AV Output Cable (NV-MS4B) 1 pc. DC Input Cable 1 pc. Battery Pack Charging Connector 1 pc. System Carrying Case (NV-MS4B) 1 pc. S-Video Cable 1 pc. AUDIO Cable (NV-MS4E)

Weight and dimensions shown are approximate.
Specifications are subject to change without notice.

Technical Information

Service caution

1–1. Service Extension Cables

Use the following extension cables when checking or adjusting the individual circuit boards.

	PART NBR	PART NAME	CONNECTION	Q'TY
1	VFK0667	30 PIN EXTENSION CABLE	MAIN C.B.A. B3001~PROCESS C.B.A. B302	1
2	VFK0724	32 PIN EXTENSION CABLE	SENSOR C.B.A. B201~PROCESS C.B.A. B301	1
3	VFK0783	12 PIN EXTENSION CABLE	CCD UNIT~SENSOR C.B.A. B202	1
4	VFK0802	24 PIN FLAT CABLE	LENS UNIT~PROCESS C.B.A. FP701	1
5	VFK0823	6 PIN FLAT CABLE	PROCESS C.B.A. FP301~CAMERA OPERATION C.B.A. FP6701	1

How to use extension cables.

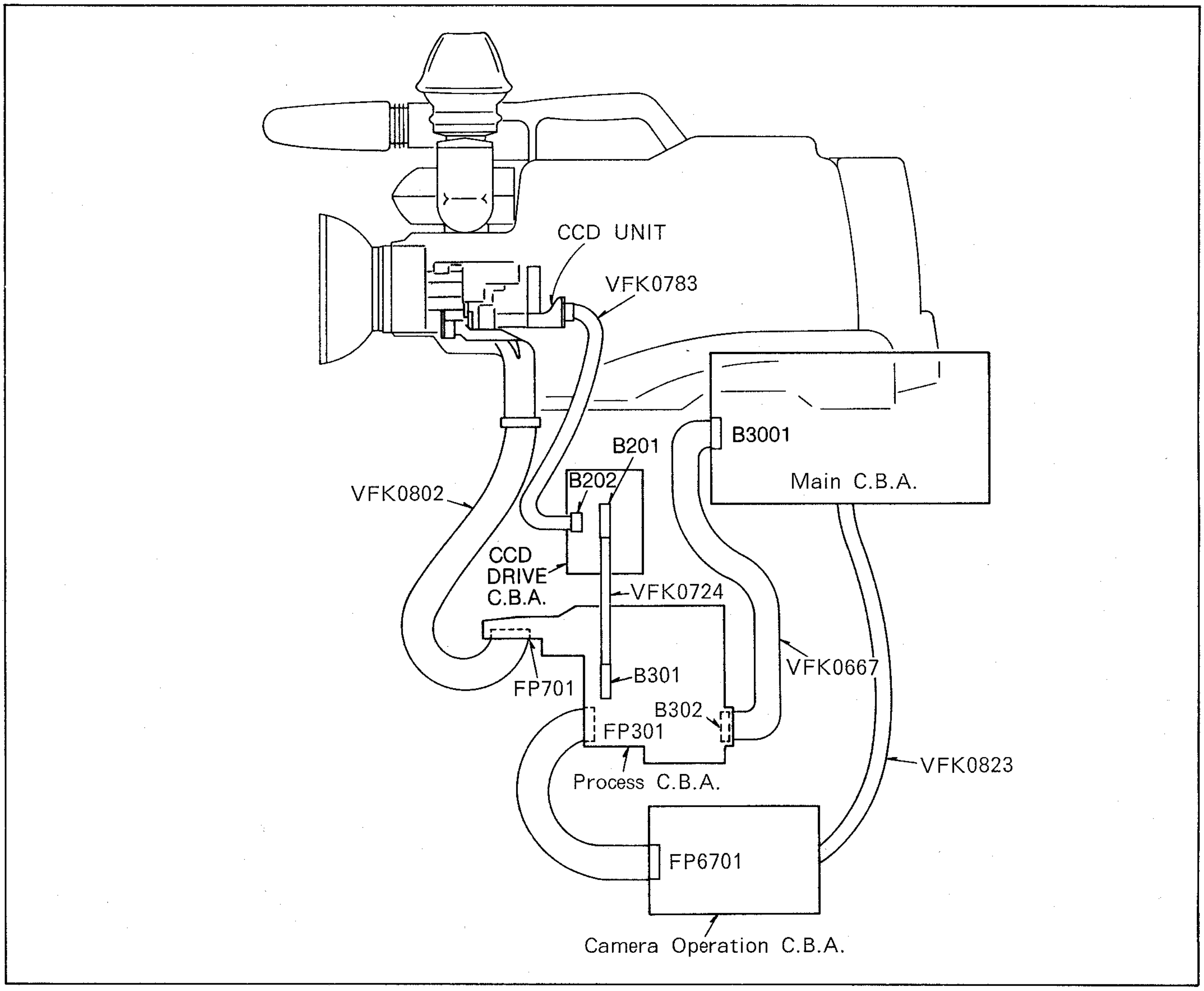
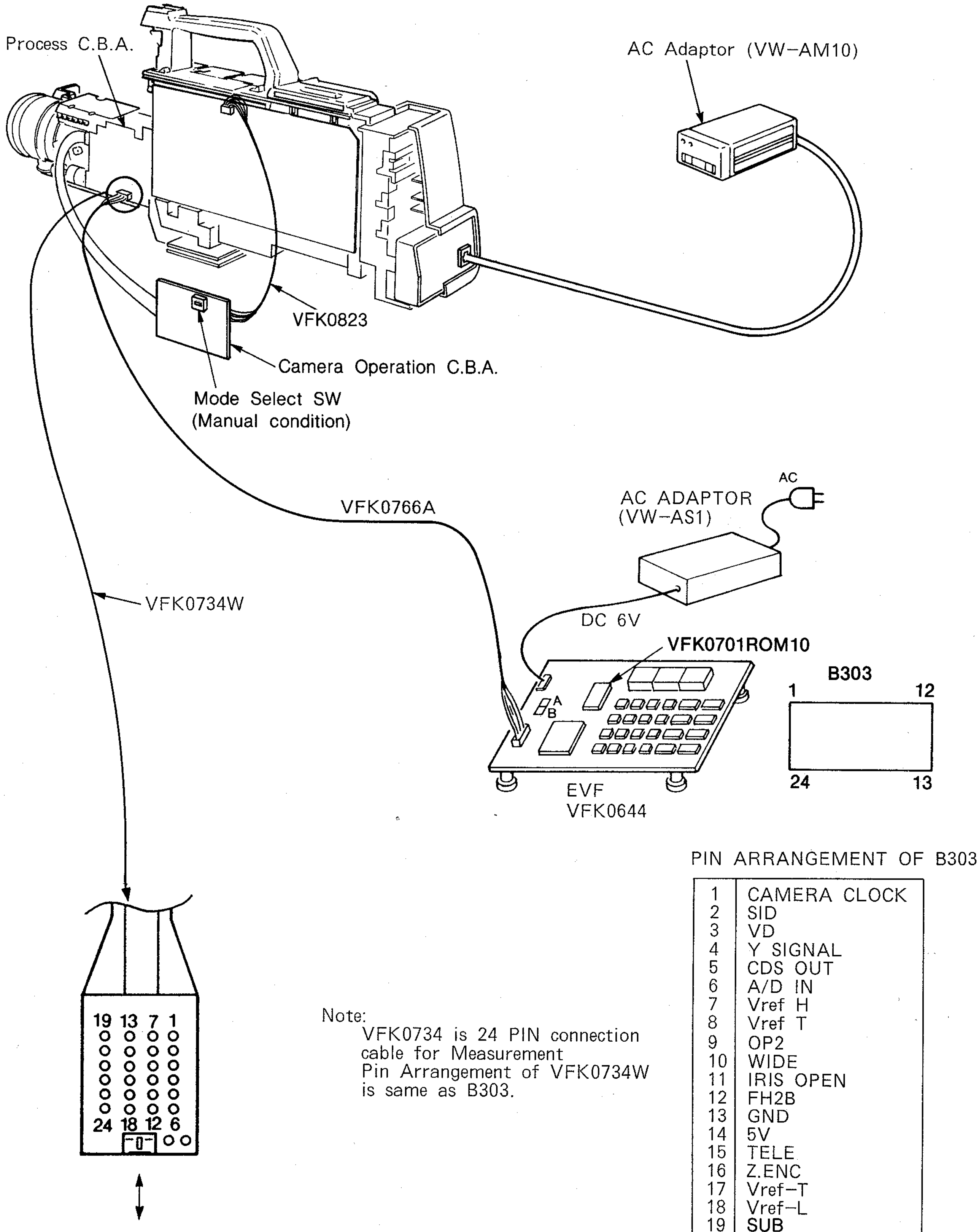


Fig. T1



Note:
VFK0734 is 24 PIN connection cable for Measurement
Pin Arrangement of VFK0734W is same as B303.

PIN ARRANGEMENT OF B303

1	CAMERA CLOCK
2	SID
3	VD
4	Y SIGNAL
5	CDS OUT
6	A/D IN
7	Vref H
8	Vref T
9	OP2
10	WIDE
11	IRIS OPEN
12	FH2B
13	GND
14	5V
15	TELE
16	Z.ENC
17	Vref–T
18	Vref–L
19	SUB
20	AGC IN
21	AF CLOCK
22	AF DATA
23	CAMERA TEST
24	GND

Fig. T2

1–2. New ROM IC for EVR fixture.

We are pleased to introduce the new ROM IC (VFK0701ROM7) for EVR fixture that we developed to adjust this Movie Camera.
This ROM IC will provide you with many superior futures as automatic calculation of auto white balance and/or colour reproduction and more.

We are also pleased to introduce the new connecting cables (VFK0766A & VFK0734W) for this Movie Camera and EVR Fixture (VFK0644).

Connections between this Movie Camera and EVR fixture are soloderless when using the VFK0766A and VFK0734W.
Please refer to Fig.T3 for how to use the cables.

ROM NUMBER & availabilty	Applicable models & Function	PART NUMBER OF EVR CONNECTION CABLE
VFK0701ROM1 available	NV-MS70/NV-M810/NV-S1/NV-S100 (PAL & NTSC) ① General Adjustment for Camera unit ② Automatic Calculation for AWB & Colour Reproduction ③ Average Data Automatic rewriting	VFK0769
VFK0701ROM2 available	NV-S5/NV-S500 (PAL & NTSC) ① General Adjustment for Camera unit ② Automatic Calculation for AWB & Colour Reproduction ③ Average Data Automatic rewriting	VFK0730
VFK0701ROM3 available	NV-G1/G2/G3 (G100/G200/G300) & NV-MS95/MS950 (PAL ONLY) ① General Adjustment for Camera unit ② Automatic Calculation for AWB & Colour Reproduction ③ Average Data Automatic rewriting	VFK0699
VFK0701ROM4 available	NV-S7/S9 (NTSC ONLY) ① General Adjustment for Camera unit ② Automatic Calculation for AWB & Colour Reproduction ③ Average Data Automatic rewriting	VFK0766A
VFK0701ROM5 available	NV-S7/NV-S700/G220/G202 (PAL ONLY) ① General Adjustment for Camera unit ② Automatic Calculation for AWB & Colour Reproduction ③ Average Data Automatic rewriting	VFK0766A & VFK0734W (NV-S7/S700) VFK0699 (NV-G220/G202)
VFK0701ROM6 available	NV-T1 (NTSC ONLY) ① General Adjustment for Camera unit ② Automatic Calculation for AWB & Colour Reproduction ③ Average Data Automatic rewriting	VFK0766A & VFK0734W
VFK0701ROM10 available	NV-M40/NV-M3000/NV-M3300(PAL ONLY) NV-MS4/NV-M9000/NV-M9900 (PAL ONLY) ① General Adjustment for Camera unit ② Automatic Calculation for AWB & Colour Reproduction ③ Average Data Automatic rewriting	VFK0766A & VFK0734W

2. Self–diagnostic system and service mode

2–1. General

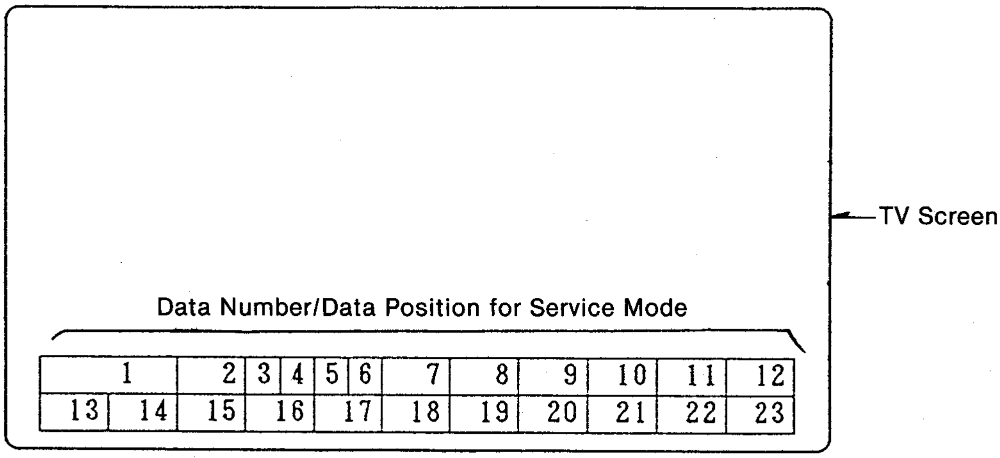
This Movie camera has a self–diagnostic system which faclitates quick trouble shooting.
Pressing the START/STOP Switch and Memory switch simultaneously, same time turn on the Power Switch, After that, unit into Service mode.

2–2. Service Mode

This Movie camera is possible to see RAM data of IC6004 on the TV screen or EVF.
How to read the RAM data is shown in Fig.T3.
All data is displayed in the Hexadecimal Number. (letters and number 0 or F)

Note:

Pressing the START/STOP Switch and Memory switch simultaneously, same time turn on the power switch.
After that this Movie camera Shows data 1 to data 23 on TV screen as shown in Fig.T3–T11.



DATA NUMBER	DATA CONTENTS
1	Data Number 1 is position that indicates Motor conditions data
2~4	Not used
5	Data Number 5 is position that indicates Mechanism positions data
6	Data Number 6 is position that indicates tape condition
7	Data Number 7 is position that indicates key operation informations
8	Data Number 8 is position that indicates I/O condition of IC6004 PIN 118~PIN 125
9	Data Number 9 is position that indicates I/O condition of IC6004 PIN 7~PIN 14
10	Data Number 10 is position that indicates I/O condition of IC6004 PIN 29~PIN 37
11~12	Data Number 11~12 are position that indicates Battery Voltage level
13~14	Not used
15	Not used
16~23	Not used

Fig. T3

2–3. Detail of Data for Service Mode

(1) Data Number 1:
If Data 1 indicate "CYL", There is possibility that cylinder Motor is locked up.

INDICATION AT POSITION 1	CONDITION OF MOTOR
TRL	REEL is locked up
UNLD	Unloading condition
LOAD	Loading condition
CYL	Cylinder Motor is locked up

Fig. T4

(2) Data Number 5:
If Data 5 indicate "01", Mechanism is Eject position.

INDICATION AT POSITION 5	MECHANISM CONDITION
01	EJECT
02	EJECT
03	STOP
04	———
05	S-LOAD
06	———
07	PRE-PAUSE
08	———
09	PAUSE
0A	———
0B	REVIEW
0C	———
0D	PLAY

Fig. T5

(3) Data Number 6:
If Data 6 indicate "A", There is possibility that sensor detect the tape end.

INDICATION AT POSITION 6	TAPE CONDITION
0	Normal condition
3	There is no video cassette inside
9	Detect the begining of Tape
A	Detect the Tape end

Fig. T6

(4) Data Number 7:
When the pushed STOP key, Data 7 indicate

INDICATION AT POSITION 7	KEY OPERATION
00	STOP
01	EJECT
02	REWIND
03	FF
04	REVIEW
05	CUE
06	PAUSE
08	REC
09	A. DUB
0A	PLAY
0C	F. ADV
54	COUNTER CLEAR
55	COUNTER MEMORY
57	OSD ON/OFF
67	DATE ON/OFF
9F	EDIT
B1	TRACKING UP
B2	TRACKING DOWN
B3	INSERT
CC	START/STOP
FF	NOP

Fig. T7

(5) Data Number 8:

INDICATION AT POSITION 8	I/O PORT CONDITION FOR I6004
80	Loading Command is output (PIN 125)
40	Unloading Command is output (PIN 124)
20	Not use
10	Audio Mute "H" is output (PIN 122)
8	Not use
4	Audio EE "H" is output (PIN 120)
2	Video EE "H" is output (PIN 119)
1	PB "L" is output (Pin 118)

Fig. T8

(6) Data Number 9

INDICATION AT POSITION 9	I/O PORT CONDITION FOR IC6004
80	SENSOR LED "L" Command is output (IC6004 PIN 14)
40	REMOCON LED "L" Command is output (IC6004 PIN 13)
20	TALLY LED "L" Command is output (IC6004 PIN 12)
10	POWER LED "L" Command is output (IC6004 PIN 11)
8	CYLINDER ON "L" Command is output (IC6004 PIN 10)
4	FULL ERASE ON Command is output (IC6004 PIN 9)
2	CAMERA P. ON Command is output (IC6004 PIN 8)
1	POWER ON Command is output (IC6004 PIN 7)

Fig. T9

(7) Data Number 10

INDICATION AT POSITION 10	I/O PORT CONDITION FOR IC6004
80	DC LIGHT ON Command is output (IC6004 PIN 37)
40	X. TAL ON Command is output (IC6004 PIN 36)
20	———
10	———
8	———
4	———
2	———
1	———

Fig. T10

(8) Data Number 11 and 12

INDICATION AT POSITION 11	INDICATION AT POSITION 12	BATTERY VOLTAGE LEVEL
00~03	10	Less than 10.5 Volt
04~0A	8	10.5~11.0 Volt
0B~0A	4	11.0~11.5 Volt
11~17	2	11.5~12.0 Volt
18~	1	More than 12.0 Volt

Fig. T11

3. HOW TO CHECK DIGITAL CIRCUIT (PROCESS)(Using Ramp Generator)

3–1. Checking Principle

The digital circuit can be checked if a ramp signal (sawtooth signal) is supplied to the input of A/D Converter (IC307–19). The output of A/D Converter is described below.
In addition to the A/D Converter (IC307) output, all digital ICs input and output signals become specified pulses, which are listed in schematic diagram.

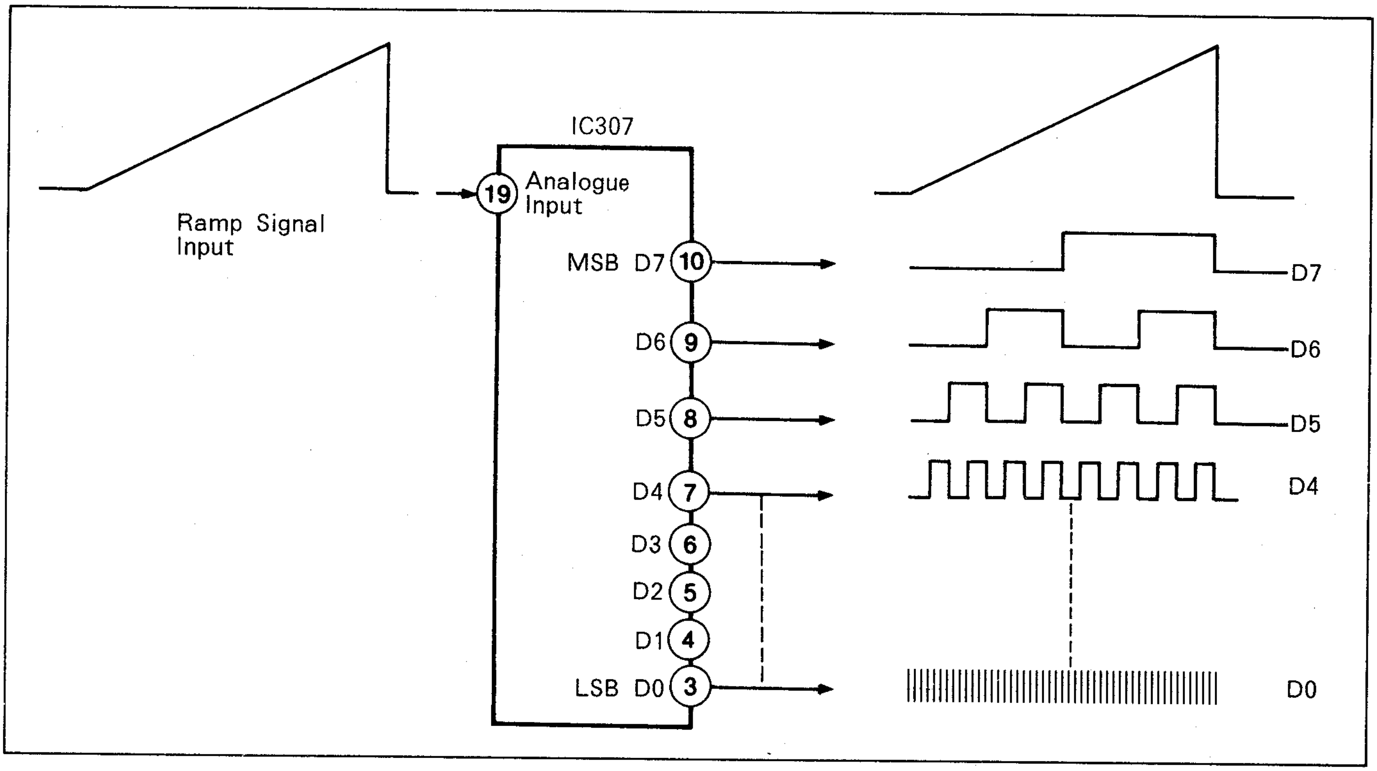
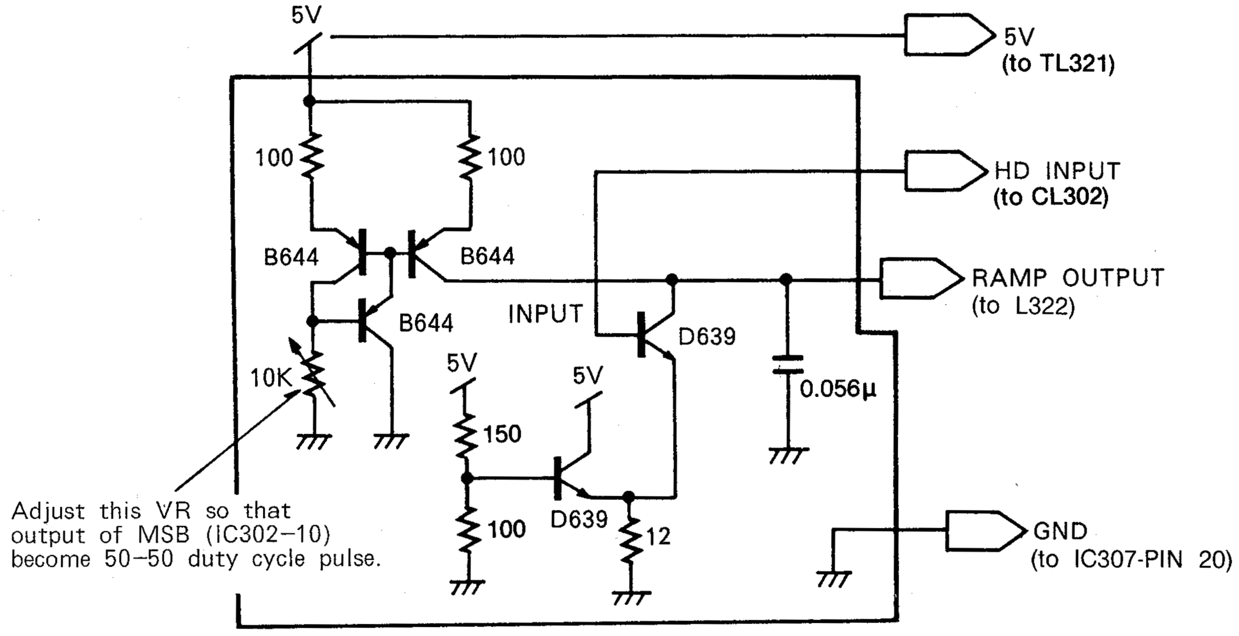


Fig. T12

3–2. How to Connect ramp generator

In order to generate a ramp signal that synchronizes with the HD(horizontal drive) of the camera, the following ramp generator circuit has been designed.
Construct and connect it to process board as shown in Fig.T13,14.



Adjust this VR so that output of MSB (IC302–10) become 50–50 duty cycle pulse.

ITEMS	VALUE	PCS
RESISTOR		
ERDS2TJ120	**12ohm**	**1**
ERDS2TJ101	**100ohm**	**3**
ERDS2TJ151	**150ohm**	**1**
VARIABLE RESISTOR		
EVNDRAA00B14	**10Kohm**	**1**
TRANSISTOR		
2SB644	**PNP**	**3**
2SD639	**NPN**	**2**
CAPACITOR		
ECQB1H563JH	**0.056μ**	**1**

Fig. T13

SECTION 2
ADJUSTMENT PROCEDURES

2-1. DETAILED DISSEMBLY METHOD

1. REMOVAL OF SHOULDED PAD/LENS HOOD

(1) Remove the 4 screws(A).
(2) Pull the shoulder PAD.
(3) Remove the Lens Hood.(By roatating counter-clockwise.)

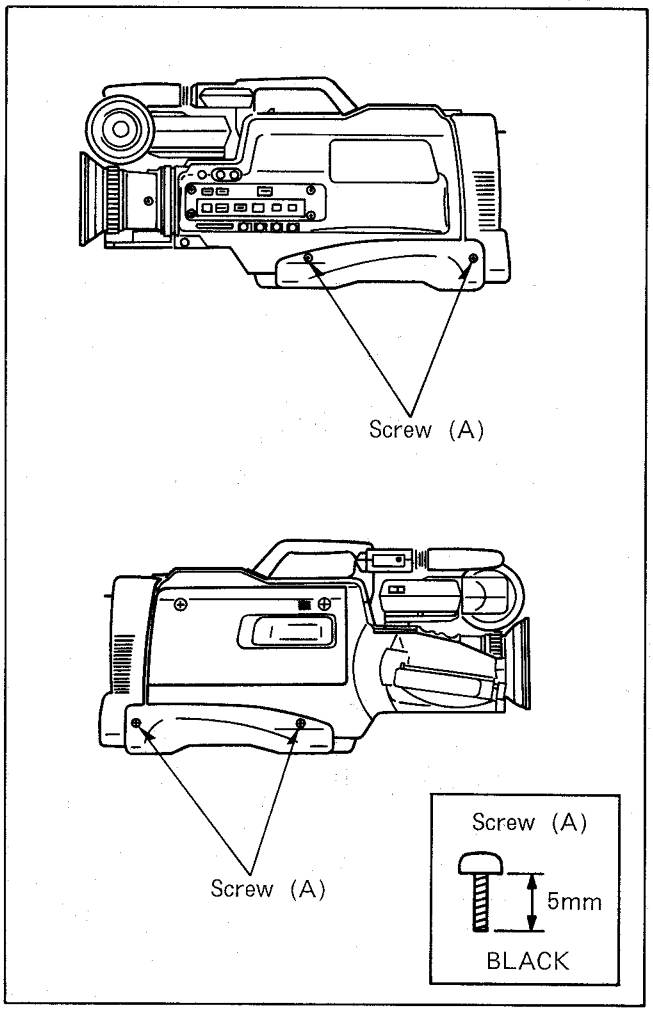


Fig. D1

2. REMOVAL OF CASSETTE COVER

(1) Remove 2 Screws(B).
(2) Pull the Cassette Cover straight up to remove.

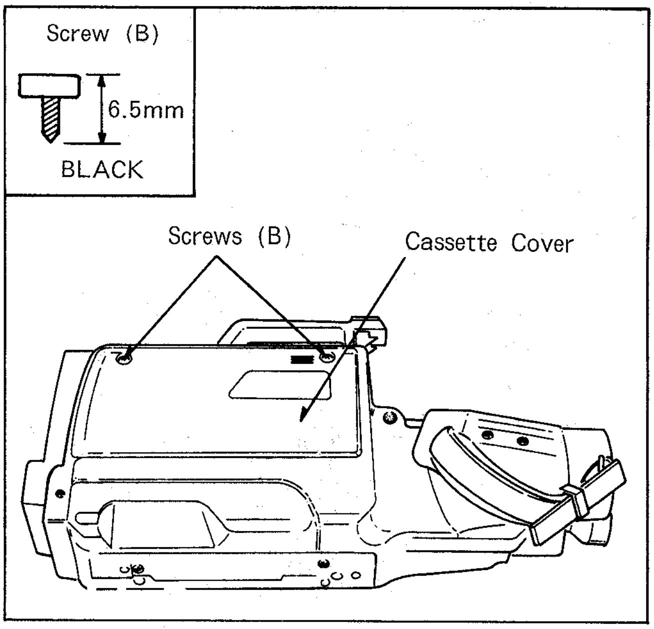


Fig. D2

3. REMOVAL OF THE MIC UNIT

(1) Remove 4 Screws (C), (D) and (E).
(2) Slide the MIC Unit in the direction shown by the arrow.
(3) Disconnect the connector on the MIC Unit.

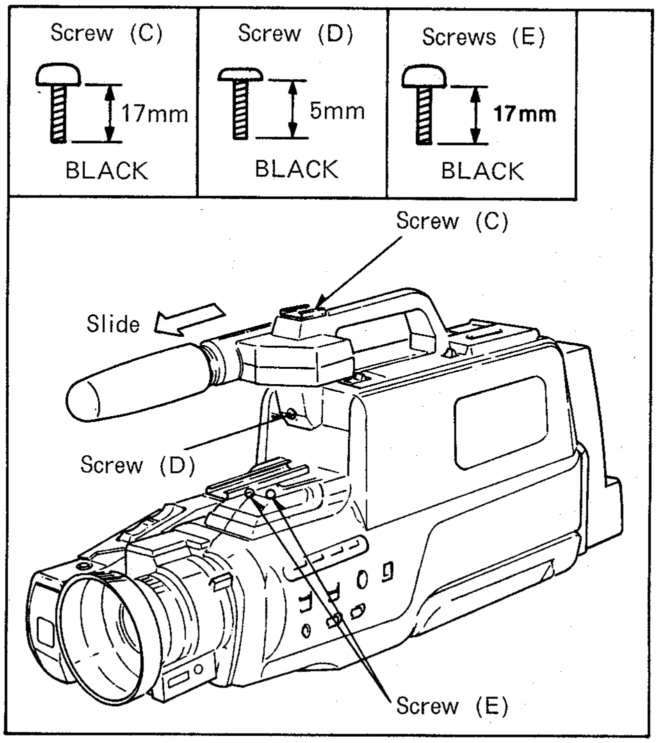


Fig. D3

4. REMOVAL OF SIDE CASE(R) UNIT

(1) Remove 2 Screws(E) shown in Fig.D3.
(2) Remove 7 Screws(F), 2 Screws(G).
(3) Lift the side case(R) unit slightly.
(4) Disconnect the connector P4501 from Main C.B.A.

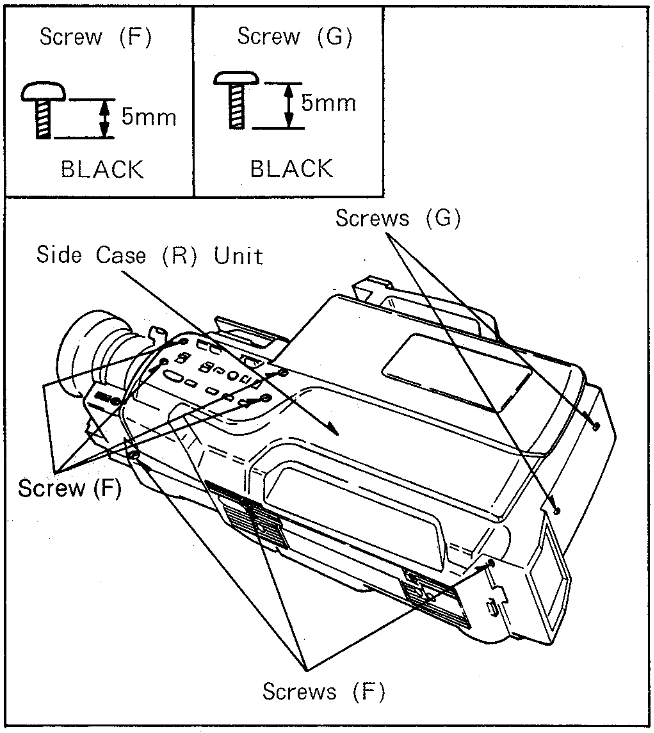


Fig. D4

5. REMOVAL OF SIDE CASE (L) UNIT

(1) Remove Screw(B), 2 Screws(H), 2 Screws(I) shown in Fig.D5.
(2) Lift the Side Case(L) Unit slightly. Then Disconnect the connector on Main C.B.A. and Process C.B.A..(EVF, TALLY, ZOOM)

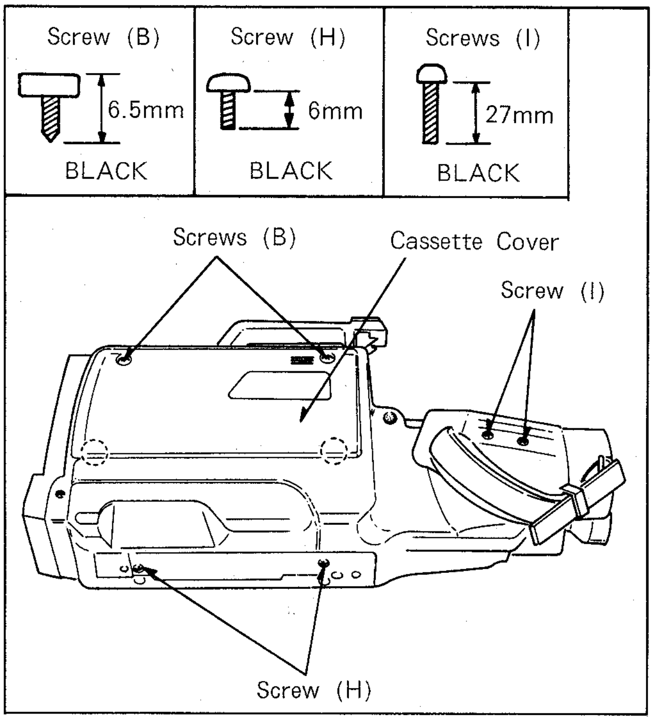


Fig. D5

6. REMOVAL OF OPERATION PANEL UNIT

(1) Disconnect the connector P6005(Safety tab), and Flexible Connector FP6001(Operation Panel) on Main C.B.A..

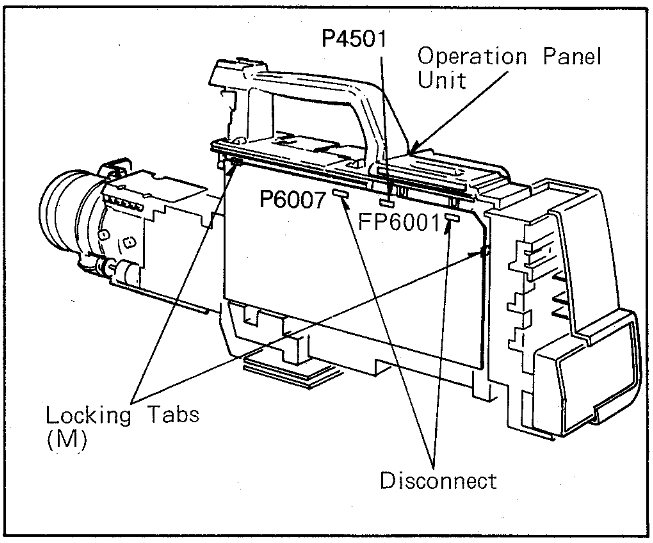


Fig. D6

7. OPENING OF MAIN C.B.A.

(1) Unsnap 2 Locking Tabs(O).
(2) Disconnect the Connector P3001(CHRA:GENE), and B3001.
(3) Open the Main C.B.A..

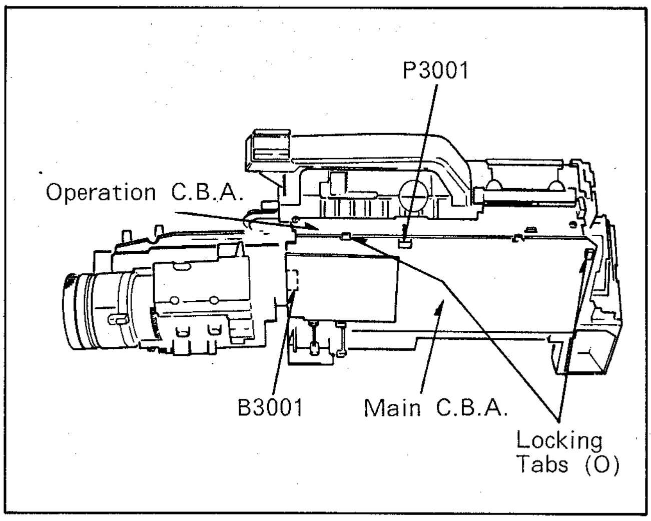


Fig. D7

8. REMOVAL OF CAMERA C.B.A.

(1) Remove Screw(J).
(2) Disconnect the Connector B301 and Flexible Connector FP701.
(3) Lift up the camera C.B.A. slightly and then Remove.

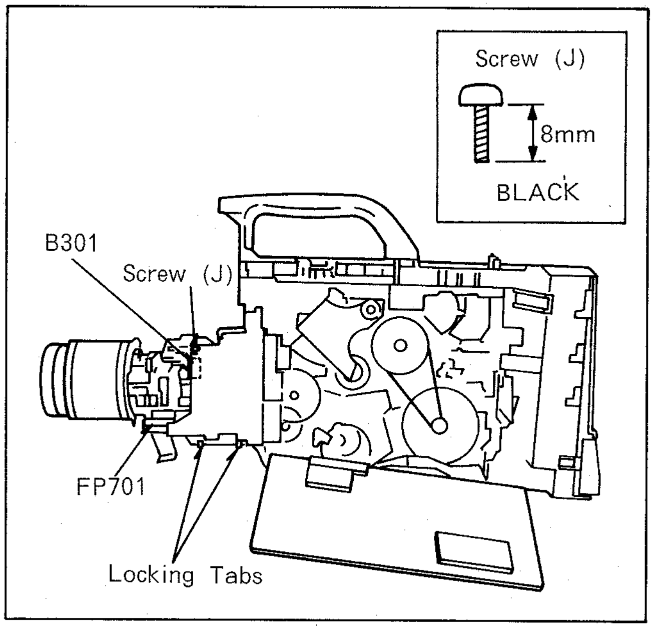


Fig. D8

9. REMOVAL OF LENS UNIT

(1) Remove 2 Screws(K).

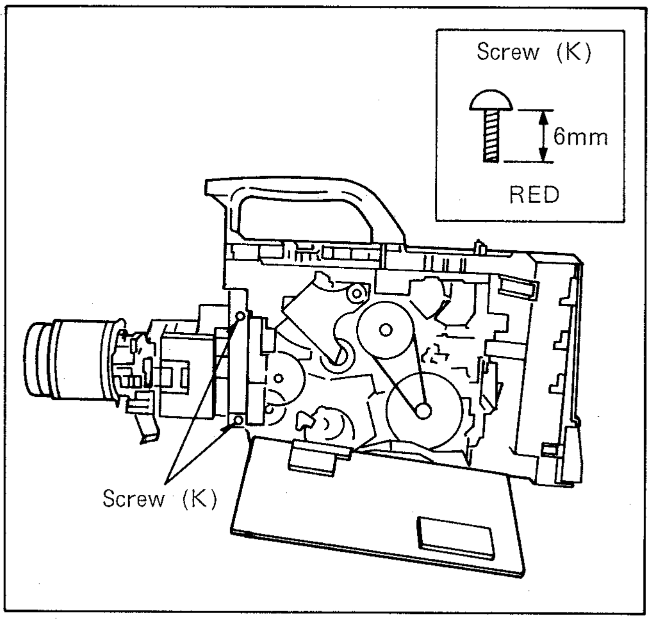


Fig. D9

10. REMOVAL OF SENSOR C.B.A.

(1) Disconnect the Connector B202.
(2) Remove 2 Screw(L).

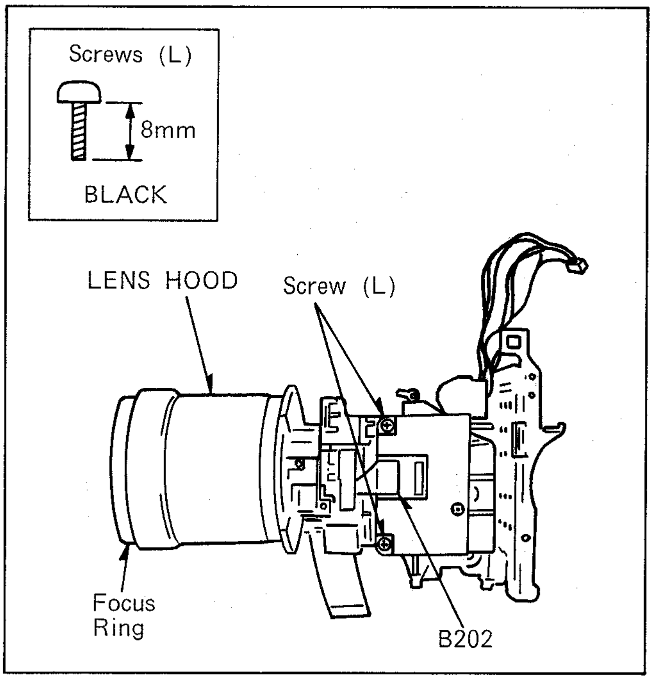


Fig. D10

11. REMOVAL OF THE LENS COVER

(1) Remove 2 Screws(M).

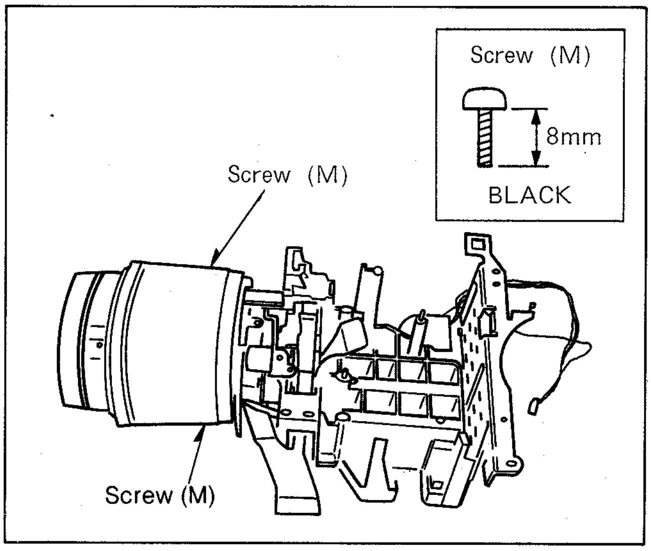


Fig. D11

12. REMOVAL OF THE LENS UNIT

(1) Remove 3 Screws(N).

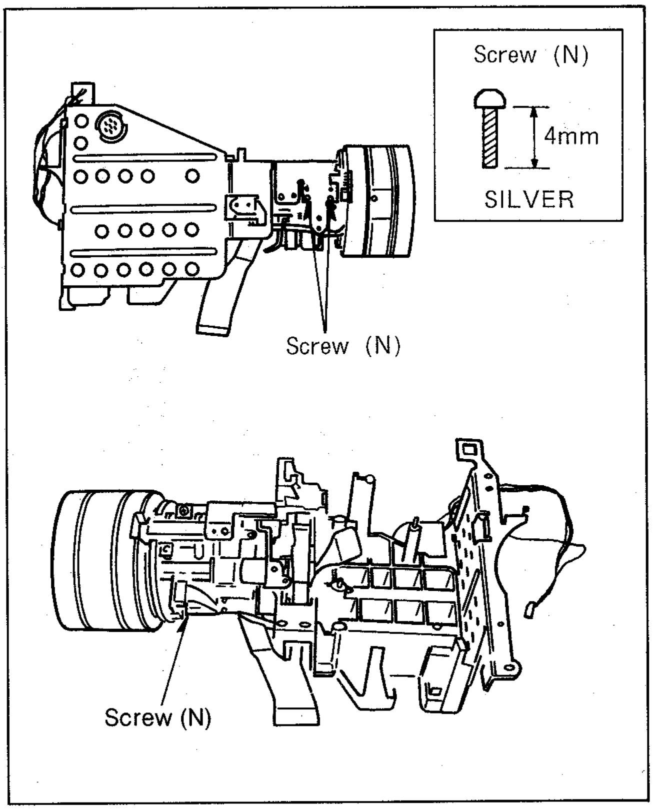


Fig. D12

13. REMOVAL OF EVF UNIT

(1) Remove 2 Screws (O).

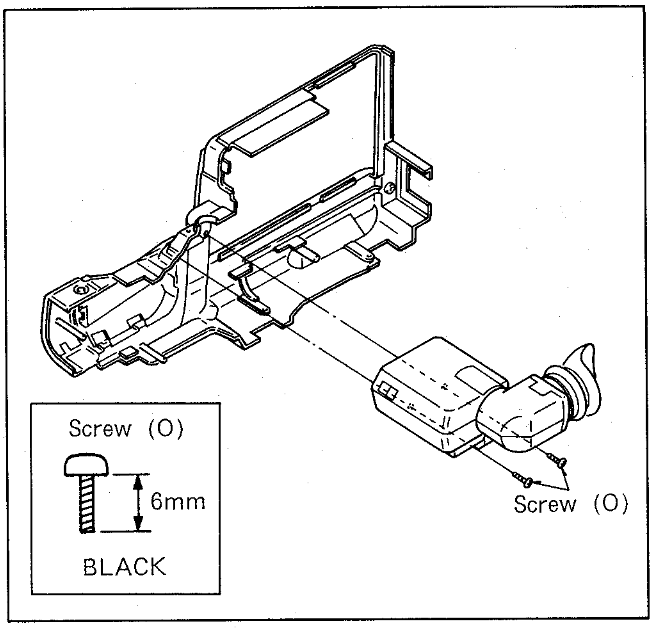


Fig. D13

14. DISASSEMBLY OF E.V.F. UNIT

(1) Remove 3 Screws (P) on the bottom of the E.V.F. Unit and then remove the Bottom Case.

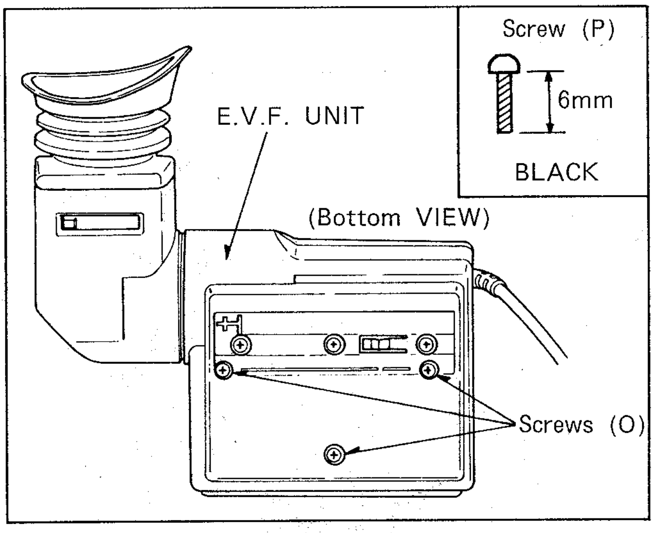


Fig. D14

(2) Lift the CRT Assembly up shown in Fig.D23.

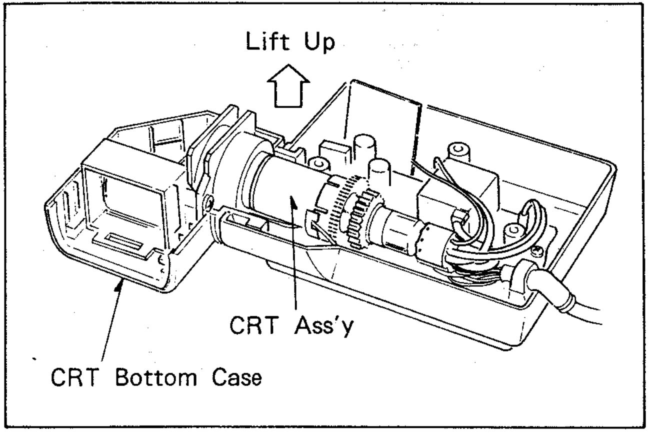


Fig. D15

(3) Rotate Nut(v) and then pull DY Assembly in the direction shown in Fig.D24 to remove it.
Then the CRT can be replaced.

(4) For re–installation, reverse the above steps.

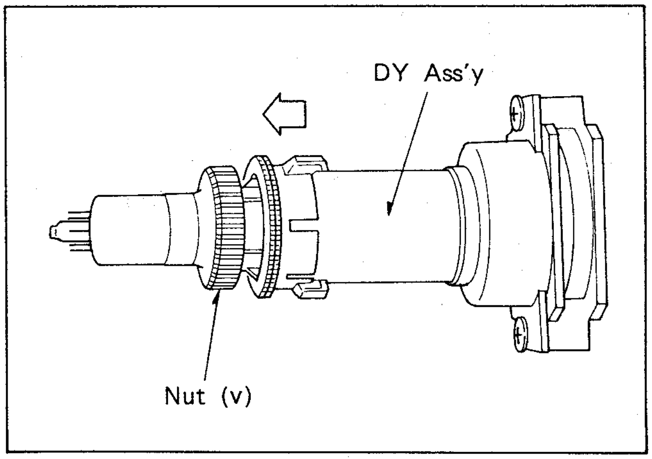


Fig. D16.

Battery Replacement

VL2020 size Button Type Battery is necessary for storing the date, time and selected tape speed in the memory, when the Movie Camera is turned off.

How to Exchange the Button Tupe Battery

Use only a "VL2020" size Button Type Battery.
The VL2020 is manufactrued by Panasonic only.

CAUTIONS FOR BATTERY REPLACEMENT

Load the new battery with its polarities (+ and −) correctly aligned.

Remove the spent battery immediately and dispose of it.

Do not try to short–circuit, heat the battery and do not throw it into a fire.

Keep the button–type battery out of reach of children.
If a battery has been swallowed, consult a doctor immediately.

Do not grasp the button–type battery with metallic tweezers because this could short–circuit it.

"THE LITHIUM BATTERY IS A CRITICAL COMPONENT (TYPE NUMBER VL2020 MANUFACTURED BY PANASONIC).

IT MUST NEVER BE SUBJECTED TO EXCESSIVE HEAT OR DISCHARGE. IT MUST THEREFORE ONLY BE FITTED IN EQUIPMENT DESIGNED SPECIFICALLY FOR ITS USE.

REPLACEMENT BATTERIES MUST BE OF THE SAME TYPE AND MANUFACTURER. THEY MUST BE FITTED IN THE SAME MANNER AND LOCATION AS THE ORIGINAL BATTERY, WITH THE CORRECT POLARITY CONNECTIONS OBSERVED.

DO NOT ATTEMPT TO RE–CHARGE THE OLD BATTERY OR RE–USE IT FOR ANY OTHER PURPOSE. IT SHOULD BE DISPOSED OF IN WASTE PRODUCTS DESTINED FOR BURIAL RATHER THEN INCINERATION".

2-2. REPLACEMENT PROCEDURES

2-2-1. REPLACEME T OF THE UPPER CYLINDER UNIT

(1) Preparation.....Removal of Side case.

1. Remove.....4 Screws (Screw (X), (Z)).
2. Remove.....Lift up the cassette frame.

(2) Replacement the upper cylinder.

Work with extremely care when removing or replacing the Upper Cylinder Unit.
Do not touch the Video Head during servicing.

1. Remove 2 screws as shown below.
2. Unsolder 18 soldered portions indicated by arrows on the Circuit Board.
3. Remove the Upper Cylinder Unit by lifting it upward.

Note:
Soldered portion can be easily removed by using solder sucking wire, etc.

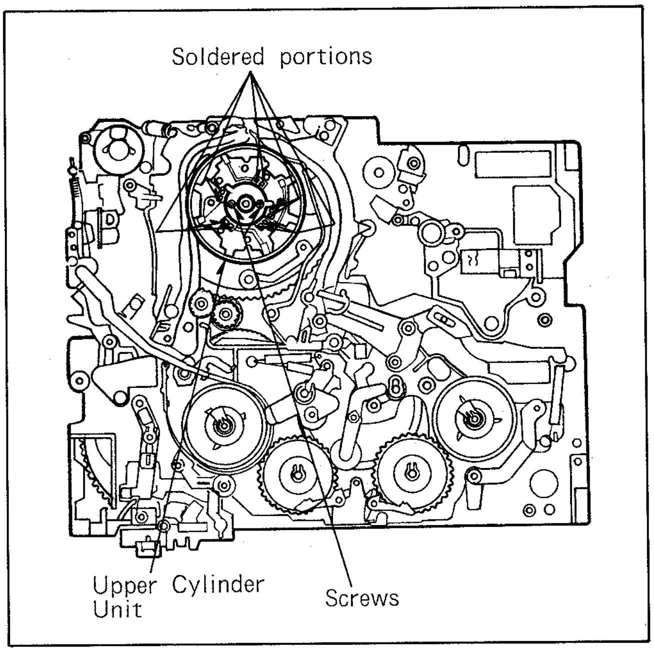


Fig. R1

4. The Upper Cylinder Unit can be reinstalled by reversing the removal procedure, however, when the Upper Cylinder is reinstalling, be extremely carefully so that VR1 of upper cylinder should be align 126' from lower cylinder alignment hole as Fig. R2.

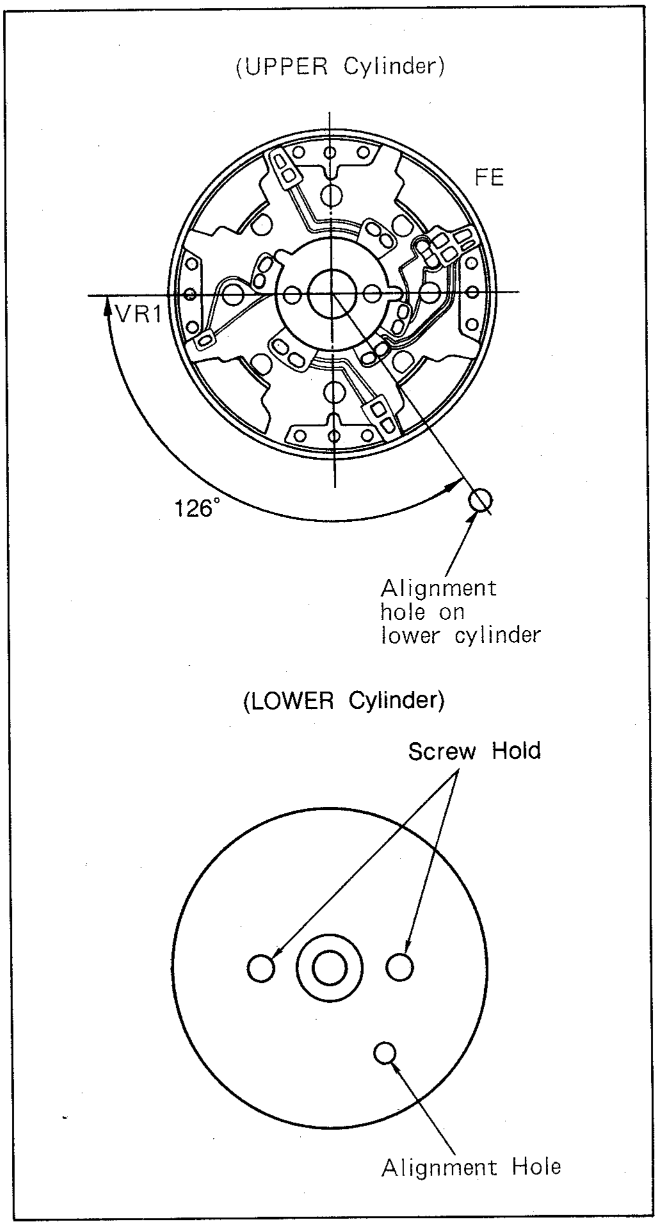


Fig. R2

2-2-2. REPLACEMENT OF DD CYLINDER UNIT

1. Remove the 3 screws and connector.
2. Take out D.D. Cylinder carefully.

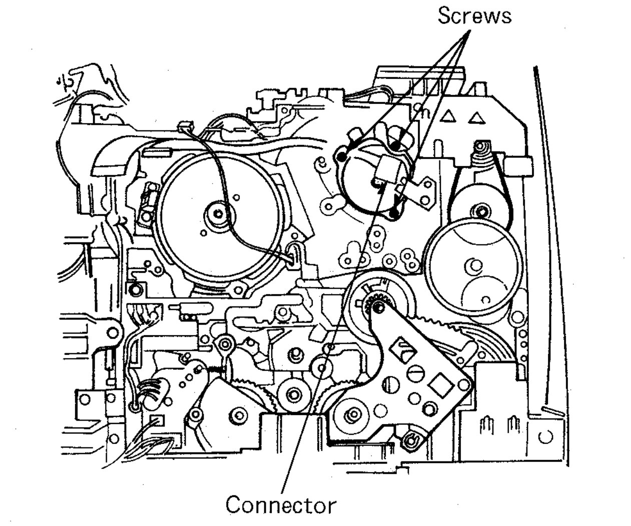


Fig. R3

Note:
Since there is very little clearance between the D.D. Cylinder Unit and the chassis, remove the D.D. Cylinder Unit carefully.

3. Reinstall the new D.D. Cylinder Unit, tighten the 3 screws and reconnect the connector.

Note:
(1) Gently rub the video head in direction of tape travel with Head cleaning stick.
(2) After replacement, confirm the performance.
If any further maintenance is required, perform "TAPE INTER-CHANGE ABILITY ADJUSTMENT.

2-2-3. REPLACEMENT OF CAPSTAN MOTOR UNIT

* Equipment required:
Reel Table Height Gauge (VFK0190)
* Specification...0.5+–0.05mm

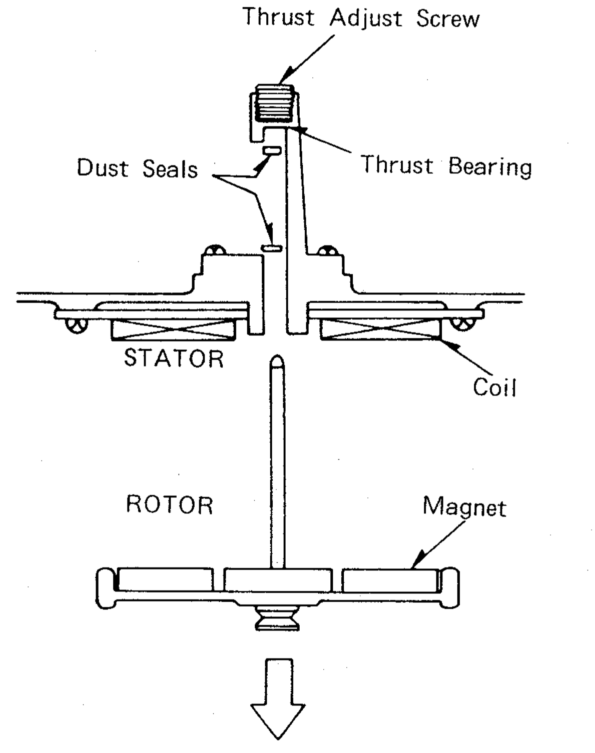


Fig. R4

(1) Remove the 2 screws and take belt cover off. After that remove the capstan belt.
(2) Tighten the Thrust Adjust Screw fully and pull the capstan rotor.

Note :

In this time pay attention not to lose two pieces of Dust Seal.

(3) Replace the new rotor with two pieces of Dust Seal.

Note :

(1) Pay attention to the replaced new rotor not to shock because of magnet absorbtion.
So hold the rotor firmly and replace it carefully.
(2) In this replacement, do not touch the Capstan shaft with any hard material like drivers or tweezers.

(4) After replacement, wipe off the Capstan shaft to remove oil, grease or dust.
(5) Unscrew Thrust Adjust Screw till the rotor is just touching to the stator.
(6) Turn this mechanism upside down and place the Reel Table Height Gauge so that the gauge fits to the chassis correctly, and read the height.
(7) Adjust the Thrust Adjust Screw so that the height difference just meets in the specification (0.5+−0.005mm) reading the height from the gauge.

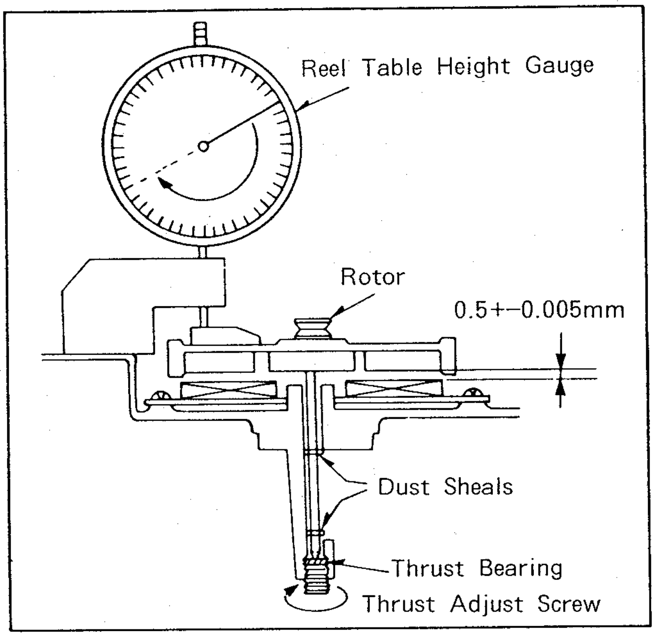


Fig. R5

Note:

If the Thrust Adjust Screw is fully opened, you have to pay attention not to lose Thrust Bearing.
When it is fixed, confirm that the direction of Thrust Bearing is correct as shown below.

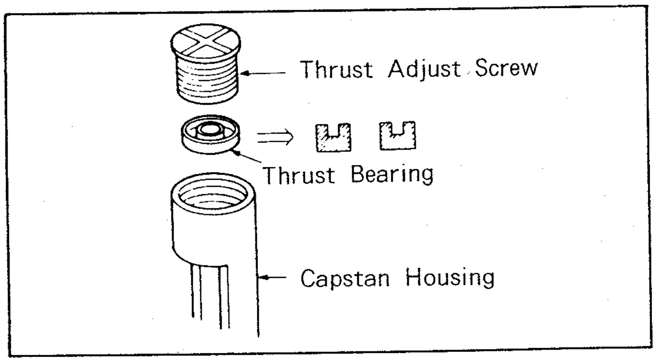


Fig. R6

2-2-4. REPLACEMENT OF TENSION BAND

(1) Remove the cassette compartment.
(2) Remove a retaining ring and take out a Rew Arm (A) Unit.
(3) Remove a retaining ring and a snap washer and take out a tension Band Unit.

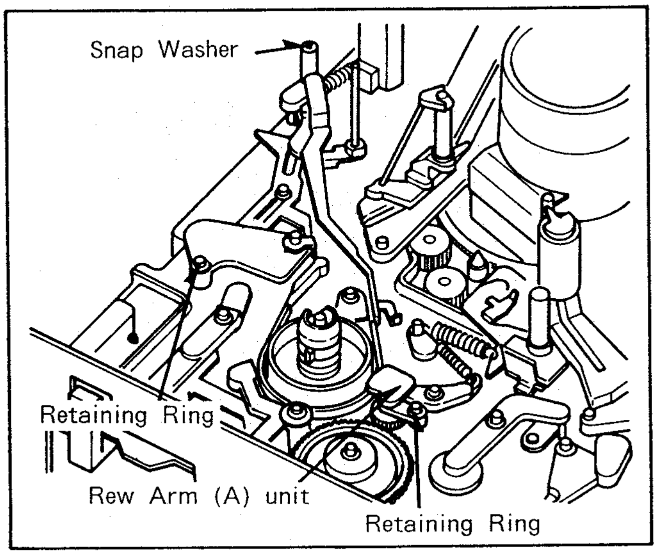


Fig. R7

(4) Remove a Tension Band from Band Release Arm and Tension Arm Unit.

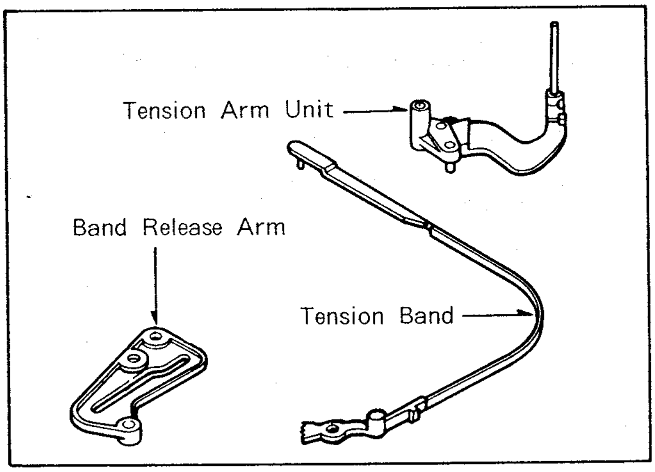


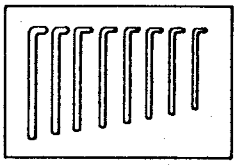
Fig. R8

(5) Replace a new Tension Band by Proceeding reverse steps shown above.

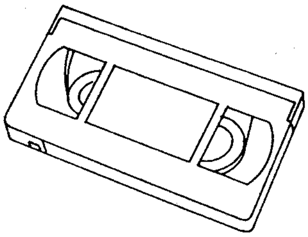
2-3. MECHANICAL ADJUSTMENT PROCEDURES

1. SERVICING FIXTURES & TOOLS

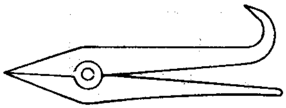
VFK0326 Hex Wrench Set (0.7, 0.9, 1.2, 1.5, 1.6, 2, 2.4, 3mm)



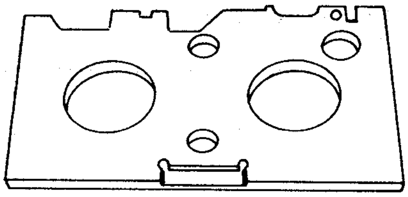
VFJ8125H3F VHS Alignment Tape



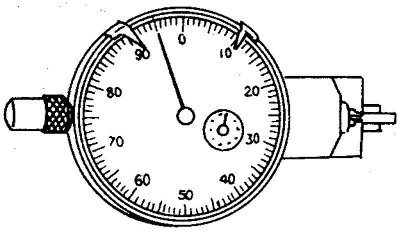
VFK0335 Retaining Ring Remover (3mm/4mm)



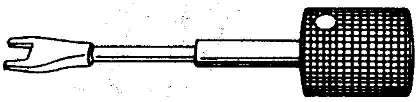
VFK0191 Post Adjustment Plate



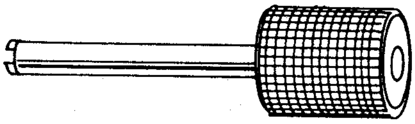
VFK0190 Reel Table Height Gauge



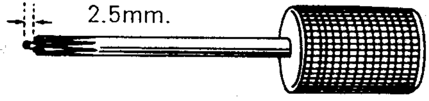
VFK0328 H–Position Adj. Fixture



VFK0329 Post Adjustment Screwdriver

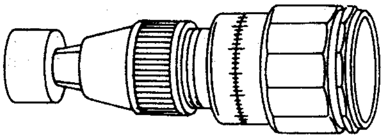


VFK0157 Fine Adjustment Screwdriver

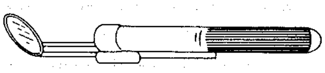


Grind the top portion approximately 2.5mm

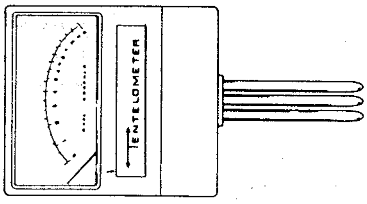
VFK0133 Dial Torque Gauge
VFK0134 Adaptor for VFK0133
VFK0180 (Plastic Clamper Only))



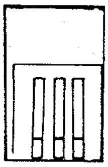
VFK0343 Check Light



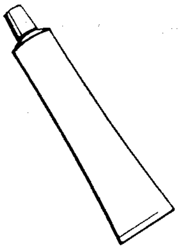
VFK0132 Back Tension Meter (TZ–H7–UM)
(Tentelometer, Made in U.S.A.)



VKF27 Head Cleaning Stick



MOR265 Morlytone Grease



High Quality Machine Oil
<Purchase Locally>
(Reel Shaft, Capstan Shaft etc.)

Cleaning Liquid
(Freon, TF, Alchol)
<Purchase Locally>
(Tape Transport Rubber Parts etc.)

2. PROCEDURES FOR CLEANING OF UPPER CYLINDER UNIT

(1) Position the video head to clean and hold the upper cylinder to keep it from turning while cleaning.
(2) Gently rub the video head in direction of tape travel whith Head Cleaning Stick.
(3) Repeat for the other three video heads.

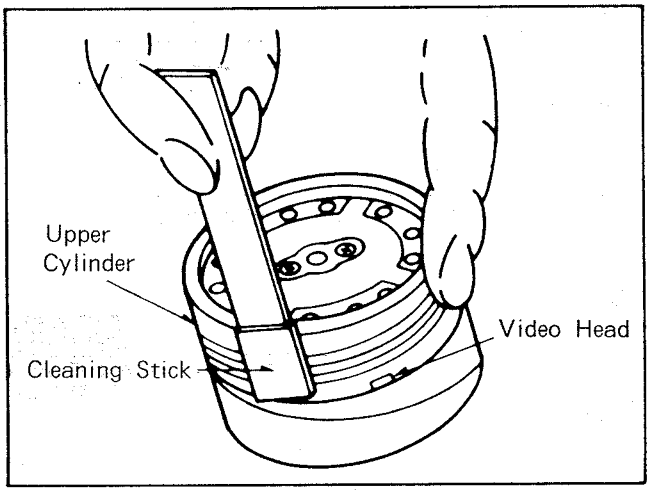


Fig. U1

Note:
(1) Do not rub vertically.
(2) Do not apply any pressure to heads. If contamination is not easily removed,continued gentle wiping will usually remove the substance.

3. TAPE INTERCHANGEABILITY ADJUSTMENT PROCEDURES

3-1. ADJUSTMENT FLOW CHART

This flow chart describes the order of steps for adjusting the tape guide posts and A/C head in order to gain access to the items needing servicing.

AFTER REINSTALLING THE P1 POST, OR IF THE P1 POST HAS BEEN TURNED EXCESSIVELY.

↓

3-2-1. COARSE ADJUSTMENT OF THE TAPE GUIDE POST HEIGHTS.

↓ * **Note:** Adjust the tape guide post P1 only.

3-2-2. CONFIRMATION OF THE TAPE TRANSPORT.

↓

3-2-5. CONFIRMATION OF THE ENVELOPE OUTPUT (LINEARITY).

AFTER REINSTALLING THE UPPER CYLINDER OR CYLINDER UNIT.

↓

3-2-5. CONFIRMATION OF THE ENVELOPE OUTPUT.

↓

3-2-9. FINE ADJUSTMENT OF THE A/C HEAD HORIZONTAL POSITION (X-VALUE).

* **Note:** Do not change the height of the P1 and P4 posts and position of the A/C head.

AFTER REINSTALLING ALL POSTS OR IF ALL POSTS HAVE BEEN TURNED EXTREMELY.

↓

3-2-1. COARSE ADJUSTMENT OF THE TAPE GUIDE POST HEIGHTS.

↓

3-2-2. CONFIRMATION OF THE TAPE TRANSPORT.

↓

3-2-3. ADJUSTMENT OF THE PULL-OUT POST (P5 POST) HEIGHT.

↓

3-2-4. CONFIRMATION OF THE A/C HEAD TILT.

↓

3-2-5. CONFIRMATION OF THE ENVELOPE OUTPUT.

AFTER REINSTALLING THE A/C HEAD.

↓

3-2-4. CONFIRMATION OF THE A/C HEAD TILT.

↓ * **Note:** Do not change the height of P4 post.

3-2-6. COARSE ADJUSTMENT OF THE A/C HEAD HEIGHT.

↓

3-2-7. ADJUSTMENT OF THE A/C HEAD HEIGHT AND AZIMUTH.

↓

3-2-8. COARSE ADJUSTMENT OF THE A/C HEAD HORIZONTAL POSITION (X-VALUE).

↓

3-2-9. FINE ADJUSTMENT OF THE A/C HEAD HORIZONTAL POSITION (X-VALUE).

AFTER REINSTALLING THE P4 POST, OR IF THE P4 POST HAS BEEN TURNED EXCESSIVELY.

3-2-1. COARSE ADJUSTMENT OF THE TAPE GUIDE POST HEIGHTS.

* **Note:**
Adjust the P4 post only.

3-2-2. CONFIRMATION OF THE TAPE TRANSPORT.

* **Note:**
Adjust the P4 post only.

3-2-4. CONFIRMATION OF THE A/C HEAD TILT.

3-2-5. CONFIRMATION OF THE ENVELOPE OUTPUT (LINEARITY).

AFTER REINSTALLING THE PULL-OUT POST (P5 POST).

3-2-3. ADJUSTMENT OF THE PULL-OUT POST (P5 POST).

* **Note:**
Do not readjust any other post.

3-2. ADJUSTMENT PROCEDURES

3-2-1. COARSE ADJUSTMENT OF THE TAPE GUIDE POST HEIGHT (P1, P2, P3 AND P4)

* Equipment Required:
Post Adjustment Plate..........VFK0191
Reel Table Height Gauge..........VFK0190
Nut Driver (Purchase locally)
Post Adjustment Screwdriver..........VFK0329

1. Remove the cassette compartment from the mechanical chassis.
2. Place the Post Adjustment Plate over the reel tables.
   (Fig. M1)
   Confirm that the Post Adjustment Plate is firmly seated.

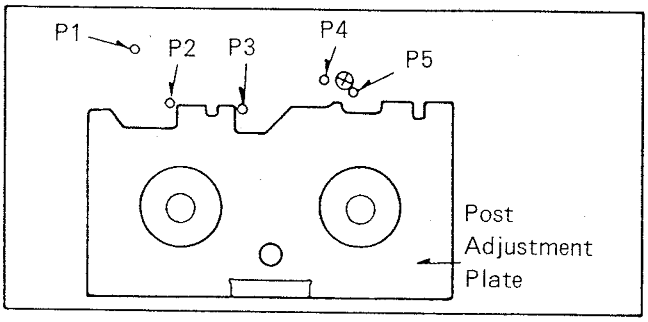


Fig. M1

3. Lower all 4 tape guide posts so that the lower tape guide on each post is below the top surface of the adjustment plate.
   Use the post Adjustment screwdriver to lower posts P2 and P3, and the Nut Driver to lower Posts P1, P4 and P5.
4. Place the Reel Table Height Gauge on the Post Adjustment Plate and lower the scraper so that it touches the plate (Fig. M2).

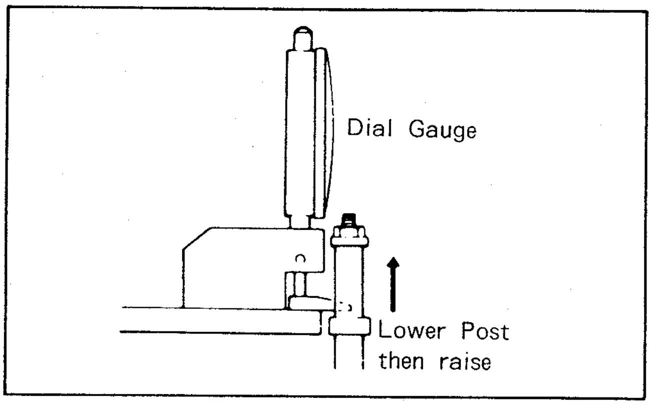


Fig. M2

5. Place the side of the scraper against the each post as shown in Figure M3, set the gauge to zero, then slowly raise the post until the lower tape guide just touches the bottom of the scraper. Use the gauge to determine the exact point at which the lower tape guide touches the scraper. (Fig. M3)

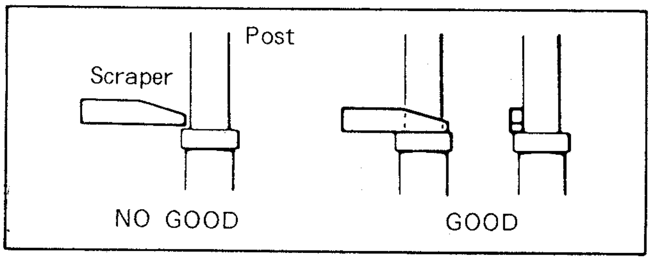


Fig. M3

3-2-2. CONFIRMATION OF THE TAPE TRANSPORT (TAPE GUIDE POSTS)

* Note:
1. The tape guide posts have been precisely adjusted at the factory. Therefore, normally do not change the height of P1, P4 and P5 posts. The following adjustment is required only when replacing the posts.
2. If curling is apparent proceed to the P4 post, wipe dirt from the pressure roller and capstan shaft using a soft cloth impregnated with Freon TF or cleaning liquid.
3. The adjustment of the post height is required only the one which has been replaced.

* Equipment Required
Post Adjustment Screwdriver.....VFK0329
Check Light.....................VFK0343
Nut Driver (Purchase locally)

1. To prevent the alignment tape from being damaged, use a normal cassette tape for this procedure.
   Playback the normal cassette tape and confirm that the tape travels without any curling at the edges of all the posts by using the check light. (Fig. M4 and Fig. M5)

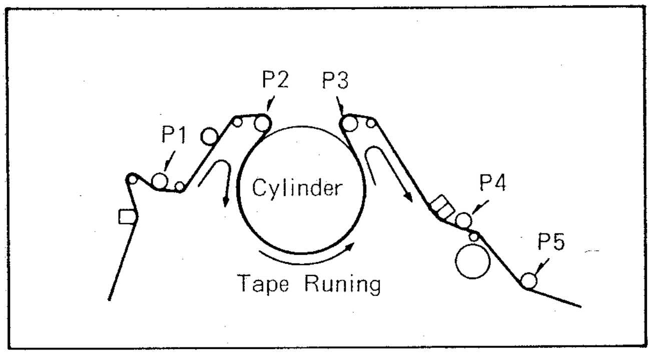


Fig. M4 Tape Transport Posts

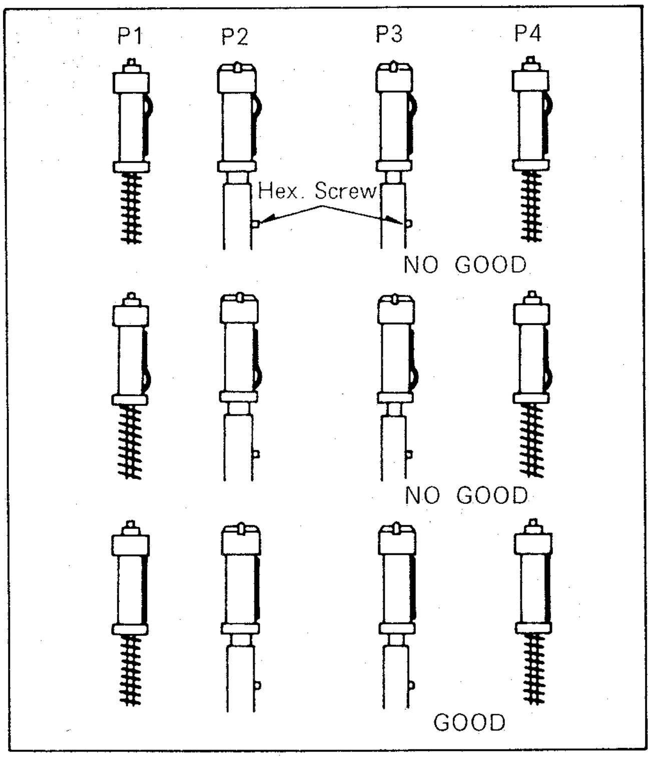


Fig. M5 Tape Guide Posts

2. If curling is apparent, adjust the height of posts by turning the top of post with the post adjustment screwdriver (posts P2 and P3) or the nut-driver (Posts P1 and P4). (Fig. M4 and M5)
3. After adjusting the P4 post, adjustment of the pull-out post (P5) is required.
   (Refer to "ADJUSTMENT OF THE PULL-OUT POST HEIGHT".)
4. If the tape curling cannot be corrected by adjusting the tape guide posts, then adjustment of the A/C head tilt may be needed.

3-2-3. ADJUSTMENT OF THE PULL-OUT POST (P5 POST) HEIGHT

* Notes:

1. This adjustment should be performed only after adjusting tape guide post P4 as the height of the pull-out post is based on the height of post P4.

* Tools and Equipment Required:
Post Adjustment Plate..........VFK0191
Reel Table Height Gauge........VFK0190
Check Light....................VFK0343
Nut Driver (Purchase locally)

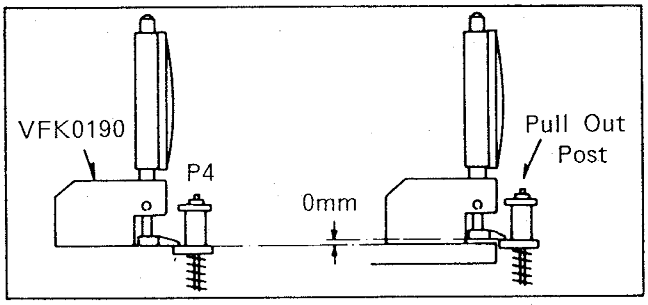


Fig. M6

1. Remove the cassette compartment by unscrewing 4 screws.
2. Place the Post Adjustment plate over the reel tables.
3. Place the Reel Table Height Gauge on the tape guide post P4, lower the scraper so that it touches the lower edges of P4, then set the gauge to zero ("0"). (Fig. M6)
4. Slightly lower the pull-out post by turning the nut on the post clockwise with the nut driver, and set the side of the scraper against the post as shown in FIg. M7.
5. Slowly turn the nut on the post counterclockwise until the gauge reads 0mm. (Fig. M6)
6. Confirm there is no tape curling at P4 post during reverse mode by using the check light.
   If tape curling occurs, Go back to step 3.

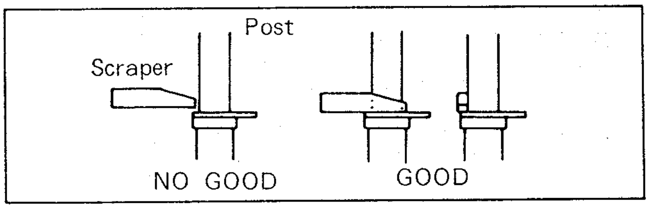


Fig. M7 Post Adjustment

3-2-4. CONFIRMATION OF THE A/C HEAD TILT

* Note:

This procedure should be performed after replacing the A/C head and pressure roller, and adjusting the height of the tape guide post (P4).
(Refer to "COARSE ADJUSTMENT OF THE TAPE GUIDE POST HEIGHTS".)

* Tools and Eqipment Required:
Hex. Wrench Set..........VFK0326
Nut Driver (purchase locally)

1. Play back the begnning portion of NV-E240 blank cassette tape and confirm that the tape runs between lower and upper limiters of the P4 post. If there is waving or frilling in the lower edge or top edge of the tape, correct the tilt of the A/C head by turning the screw located behind the A/C head. (Fig. M8)

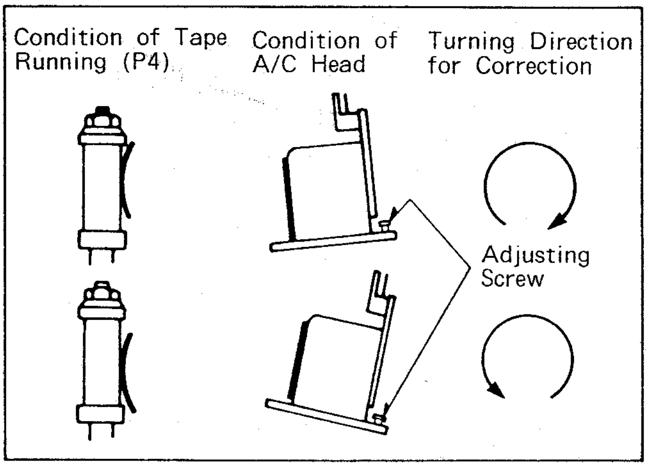

Condition of Tape Running (P4)
Condition of A/C Head
Turning Direction for Correction
Adjusting Screw

Fig. M8

2. If the tape curling cannot be removed by adjusting the A/C head tilt, then readjustment of the height of the tape guide post (P4) may be needed.

* Notes:

1. The tape guide post (P4) has been precisely adjusted at the factory. Therefore, normally the tape guide post (P4) readjustment is not required to eliminate the tape curling.
2. After adjusting the A/C head tilt, the A/C head height adjustment is required.

3-2-5. CONFIRMATION OF THE ENVELOPE OUTPUT (LINEARITY)

* Note:

Before playing back the alignment tape, play back a normal cassette tape and confirm correct transport.
(Refer to "CONFIRMATION OF THE TAPE TRANSPORT".)

* Tools and Equipment Required:
Post Adjustment Screwdriver.....VFK0329
Alignment Tape.....VFJ8125H3F

1. Connect the scope to the output of the Head Amp (CL3003) on the Main C.B.A. and TP6201 on the same C.B.A. to EX +− Trigger of the scope.
2. Play back the monoscope portion of the alignment tape VFJ8125H3F.
3. Turn the Tracking Control VR and adjust for maximum RF envelope.
4. If the RF envelope appears like example "A" or "B" in Fig.M9, then adjustment of tape guide post (P2 : Entrance) is necessary.
5. Adjust the tape guide post (P2) with the post adjustment screwdriver so that the RF envelope waveform at the entrance portion becomes flat as shown "C" in Fig.M9. (See Fig.M12 also)

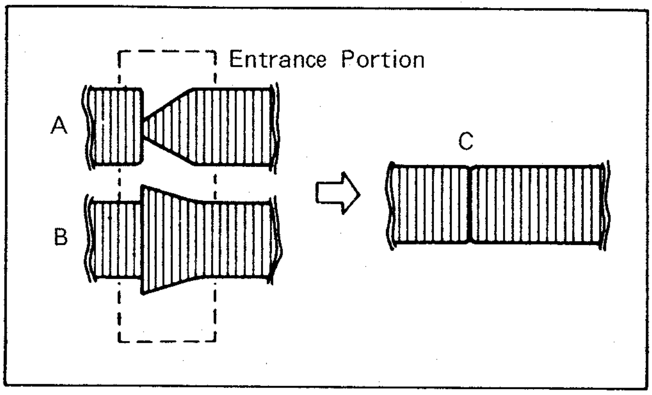


Fig. M9

6. If the RF envelope appears like example "D" or "E" in Fig. M10, then adjustment of the tape guide post (P3 : Exit) is necessary.
7. Adjust the tape guide post (P3) in the same manner as the P2 post so that the exit portion becomes flat as shown in "F" in Fig. M10.

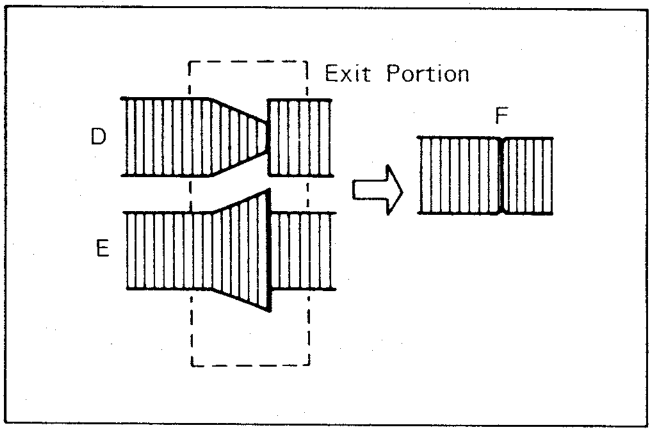


Fig. M10

8. Turn the Tracking VR from end to end. The variation of RF envelope should be nearly parallel as shown in Figure M11.
9. Turn the Tracking VR and adjust for maximum RF envelope. If the RF envelope does not meet these specs, V1/V 0.7, V2/V 0.8, then repeat steps 1–9 of item 3-2-5. again. (Fig. M13)

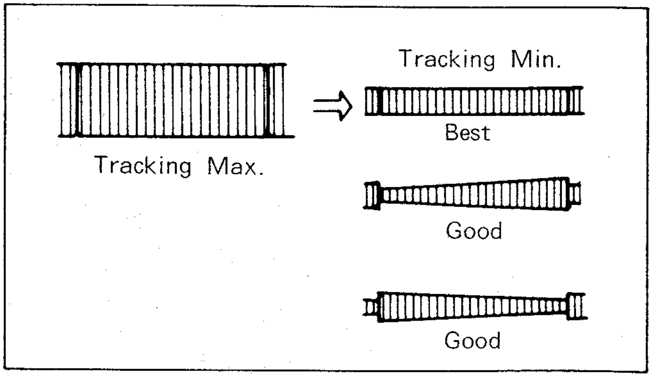


Fig. M11

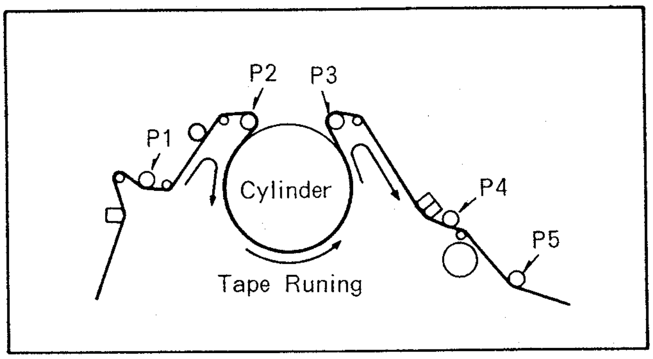


Fig. M12 Loading of post

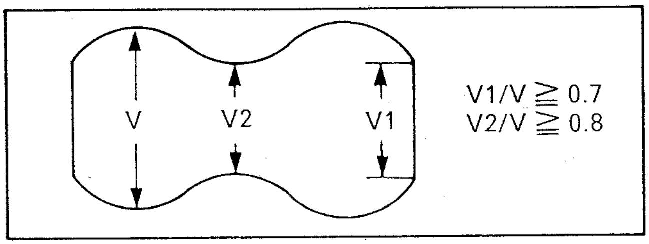


Fig. M13 Spec. of Envelope Figure

10. Turn the Tracking VR from end to end again and then back to the detent (Fix) position.
    At the detent position, the RF envelope waveform should be at maximum. If it is not at maximum then "ADJUSTMENT OF THE A/C HEAD HORIZONTAL POSITION" is necessary.
    (Refer to "FINE ADJUSTMENT OF THE A/C HEAD HORIZONTAL POSITION".)

3-2-6. COARSE ADJUSTMENT OF THE A/C/ HEAD HEIGHT

* Note:
  This procedure should be performed only when the A/C Head is replaced.

* Tools and Equipment Required:
  Check Light..........VFK0343
  Nut Driver (Purchase locally)

(1) Looking at the lower edge of the control head within the tape running, ensure that lower edge of the tape runs along 0.25mm far from lower edge of the control head. (litte bit up position from lower edge of control head.) If it doesn't, slightly turn the nut (A) in either direction to correct clockwise to lower the head and counterclockwise to raise it.

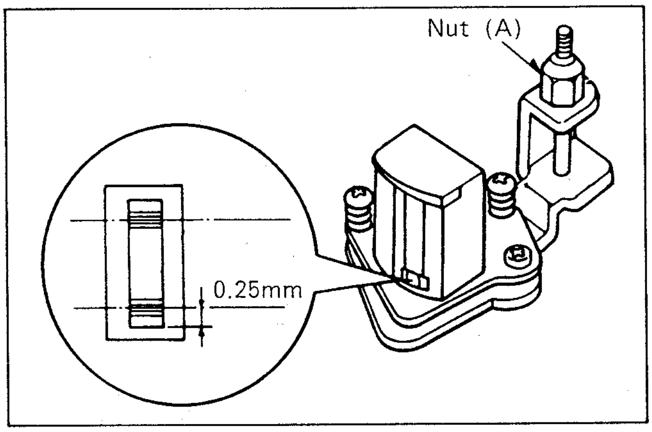


Fig. M14

3-2-7. ADJUSTMENT OF THE A/C HEAD AND AZIMUTH

* Note:
  This procedure should be performed only when the A/C Head is replaced and posts hight are readjusted.

* Tools and Equipment Required:
  Nut Driver (Purchase locally)
  Alignment Tape.....VFJ8125H3F

1. Connect the scope to the audio output.
2. Play back the 2nd portion (Normal Audio 6KHz) of the alignment tape, VFJ8125H3F.
3. Adjust the screw (B) so that the audio output level becomes maximum. (Fig.M15)

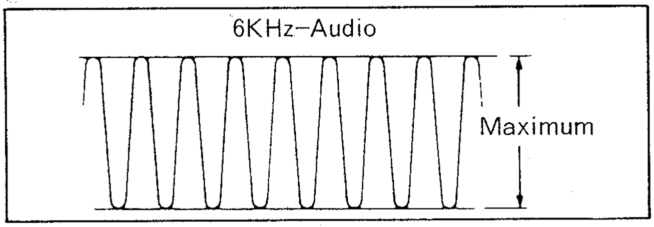


Fig. M15

4. Then adjust the nut (A) so that the audio output level (at TP4001) maximum.

3-2-8. ADJUSTMENT OF A/C HEAD HORIZONTAL POSITION

Note:
  This procedure should be performed only when the A/C head is replaced and after performing the tape interchangeability adjustment.

* Tools and Equipment Required:
  H. Position Adj. Fixture..........VFK0328
  Alignment Tape................VFJ8125H3F

1. Set the Tracking Control VR to the center detent (fixed) position.
2. Connect the scope CH1 to TP3001 on the Main C.B.A., and TP4001 on the Audio C.B.A. to Ext–trigger the scope.
3. Play back the Monoscope pattern of the alignment tape (VFM8125H3F).
4. Adjust the adjust screw so that the RF envelope output level becomes is maximum at the detent position (Fig.M16,M17).
5. Turn the Tracking VR from end to end and then back to the detent position.
   Confirm that the RF envelope output level is maximized at the detent position. (Fig.M11)

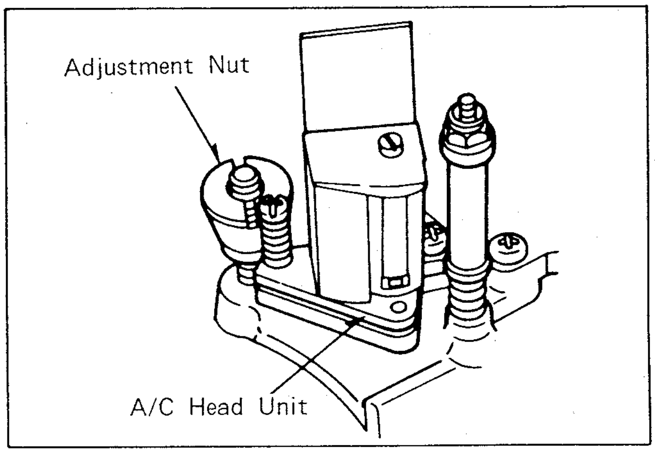


Fig. M16

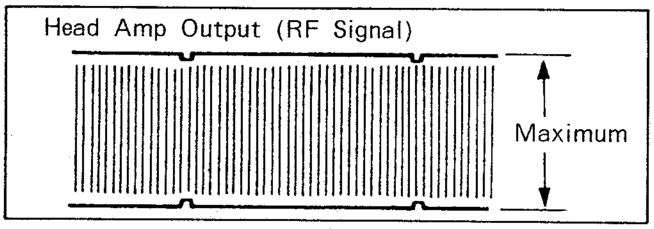


Fig. M17

4. OTHER ADJUSTMENT PROCEDURES

4-1. CONFIRMATION OF BRAKE TORQUE

* Equipment Required:
Dial Torque Gauge..........VFK0133
Adaptor for Gauge..........VFK0134
* Specification:------see spec table (Fig. M19).

(1) Remove the cassette compartment by unscrewing 4 screws.
(2) Attach the adaptor to the torque gauge and place the unit in STOP mode.
(3) Place the torque on the reel table. The weight of gauge should not rest on the reel table.

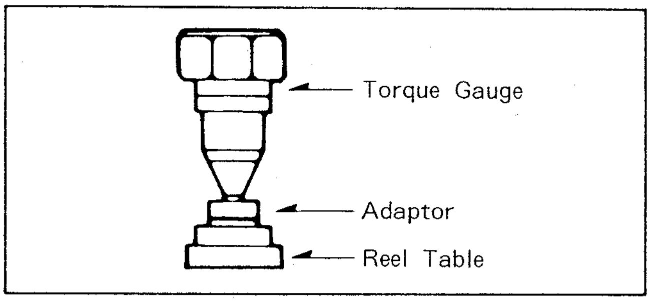
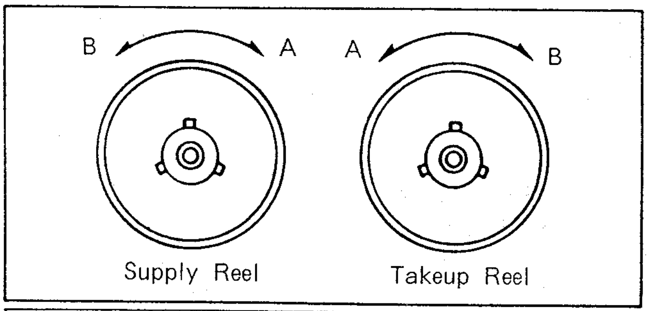


Fig. M18

(4) Turn torque gauge in either direction indicated in the Fig. M19, and read the gauge when the brake begins slipping.

Note:

If proper brake torque can not be optained, check the both take–up and supply clutch gear.



	A	B
Takeup	28+–8g–cm	28+–8g–cm
Supply	28+–8g–cm	28+–8g–cm

Fig. M19

4-2. TENSION POST POSITION ADJUSTMENT

* Specification : ----------2.4mm~2.9mm

(1) Remove the Cassette Up unit by unscrewing 4 screws. (Refer to the disassembly procedures titled in Removal of the Cassette Up Unit). Place the unit in Play mode by rotating Drive Gear (A) in clockwise shown below.

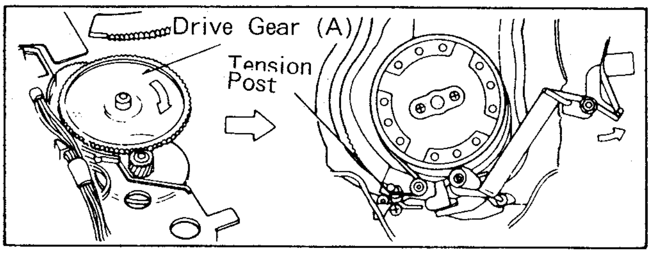


Fig. M20

Note:

In this case, make sure that the power is not applied.

(2) Loosen the screw (A) a little bit and adjust the Tension Post adjustment plate so that the "Distance (A)" shown below becomes just meet in the specification (2.4m~2.9mm).
(3) Tighten the screw (A) to fix it.

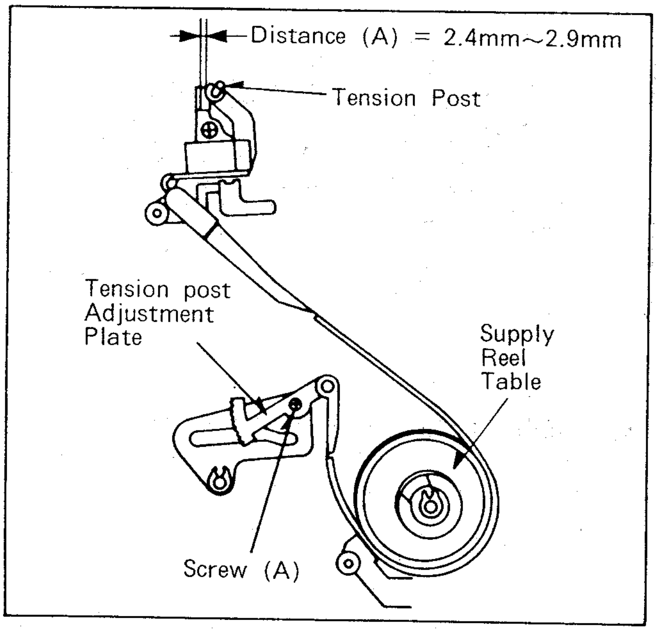


Fig. M21

4-3. BACK TENSION ADJUSTMENT

* Equipment Required:
Back Tension Meter.....VFK0132
VHS Cassette Tape (120min)
* Specification:-----------19–23g

1. Playback the cassette tape from the beginning and wait until the tape movement get the stabilized. (for approx. 10–20 seconds) is stabilized.

2. Insert the Back Tension Meter into the path of a tape, and measure if the back tension is within specification as shown in Fig.M22.

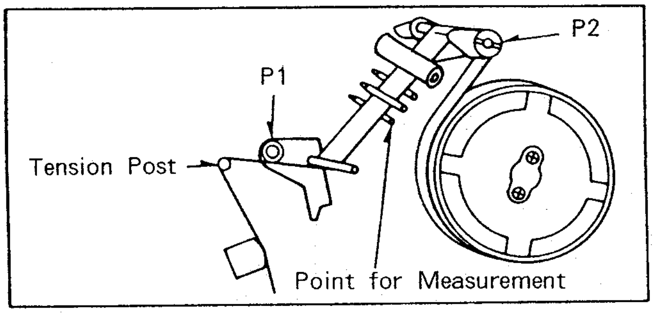


Fig. M22 Measurement of Back Tension

Note:

1. While measuring, make sure that the three probes of the meter are all in good contact with the tape.
2. As the tension meter is very sensitive, we recommend taking 3 separate readings.
3. If it is out of specification, change the spring notch as shown in Fig. M23.

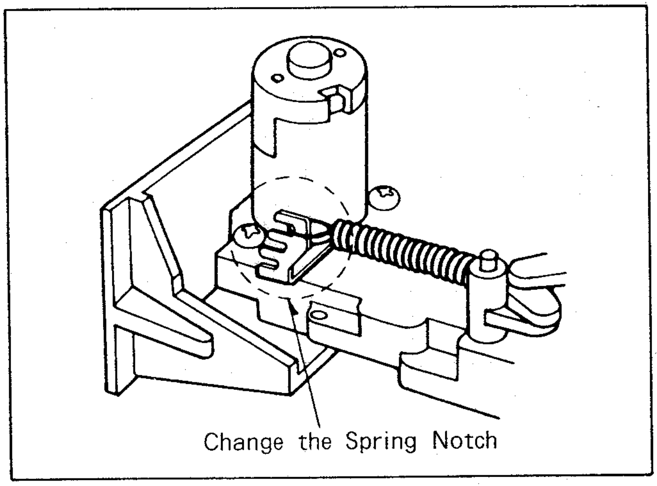


Fig. M23

4-4. REEL TABLES HEIGHT ADJUSTMENT

* Equipment Required:
Post Adjustment Plate..........VFK0191
Reel Table Height Gauge........VFK0190
* Specification———————0~-0.15mm

Note:

Cut-out on Post Adjustment Plate is reference of reel table height and their height is measured based on this reference.

1. Place the post adjustment plate on the reels, and put the Gauge on the plate. Set the gauge to zero "0" with the foot scraper of the gauge touching the cut-out portion of the plate.

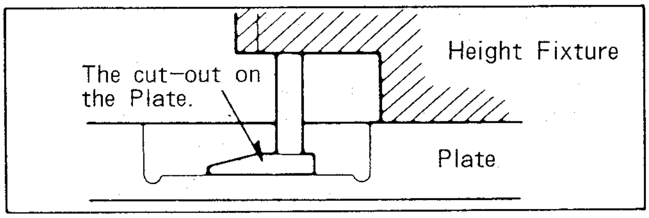


Fig. M24

2. Then measure the height of reel table and confirm the difference performed in step 1 as shown below. Do the same for the other reel table.

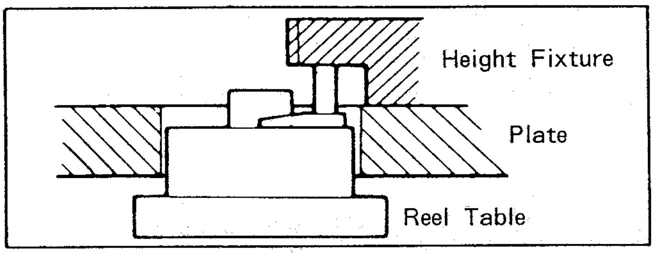


Fig. M25

3. If a height difference in readings between the cut-out portion of plate and reel tables is not 0~-0.15mm (higher or lower), adjust the height of the reel to obtain specified height.
4. For adjustment add or reduce a washer.

4-5. ADJUSTMENT OF FG HEAD GAP

* Specification:———————0.17~0.18mm

(1). Slightly loosen the 2 screws.
(2). Put the paper which is used for cover page of this volume into the gap between F.G.Head and Capstan rotor. (The thickness of the cover page is approx 0.17mm)
(3). After adjustment, tighten 2 screws.

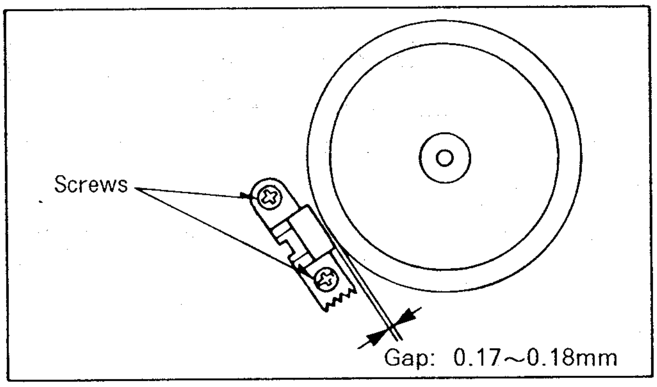


Fig. M26

Note:

Do not touch the surface of rotor and keep any magnetizable material away.

4-6. ASSEMBLY ADJUSTMENT PROCEDURES OF MECHANISM

The mechanism of this model is mostly engaged to the System Control Circuit, through the mode select switch.
Therefore the relation between the mode select switch and the cam gear decides all further mechanical movement of the mechanical parts such as levers, gears, rollers and so on.
If these parts are fixed in properly, the unit will be unloaded or compulsorily stopped.
And it will result being damage to any mechanical or electrical parts.

[1] PROCEDURES FOR ASSEMBLING LOADING RING AND LOADING GEARS

(1) Install a Loading Ring T (1) unit and a Loading Gear (B) so that both triangle marks line on as shown below.

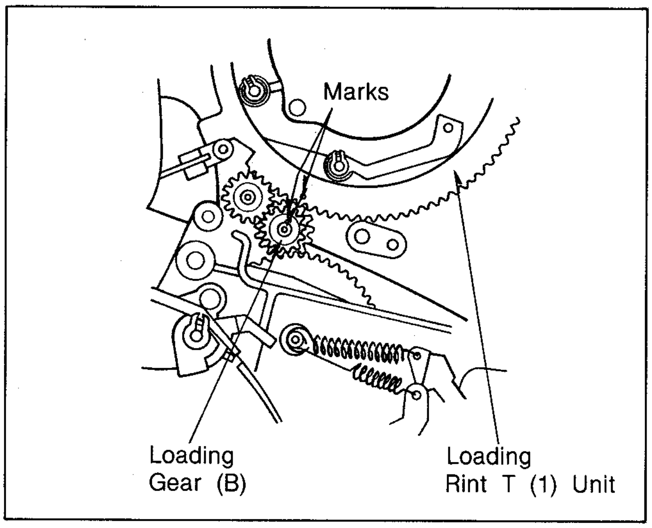


Fig. M27

(2) Install a Loading Gear (A) and next fix a Loading Ring S (1) Unit so that the holes of Loading Ring S (1) Unit and T (1) Unit line on as shown below.

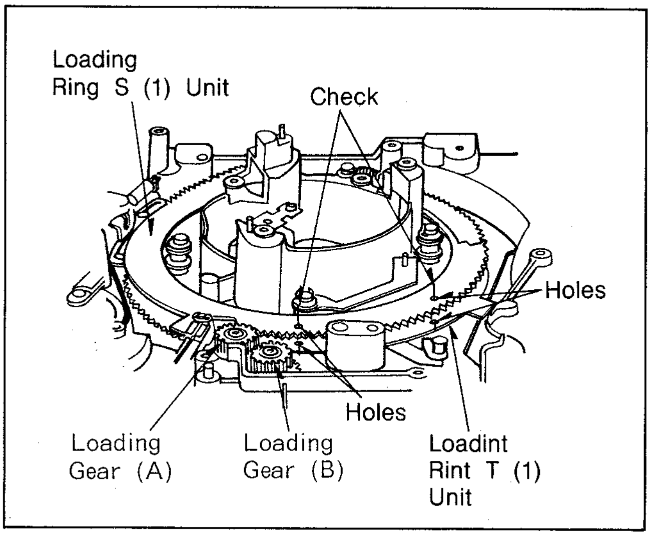


Fig. M28

Note:
Pay attention that the washers are remaining under the loading gears or any other parts.

[2] PROCEDURES FOR ASSEMBLING TAKE-UP LOADING GUIDE AND TAKE-UP LOADING POST UNIT

(1) Install Loading Guide T unit.
The small projection of a Loading Link T unit must be inserted into gap of Loading Guide T unit.

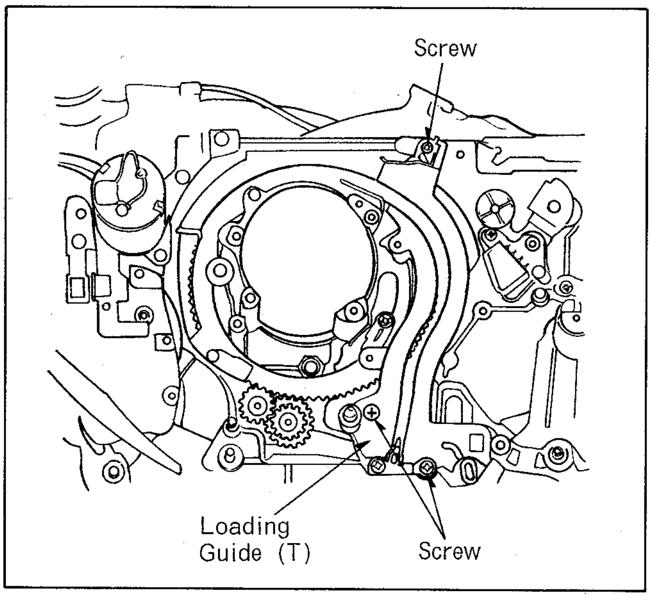


Fig. M29

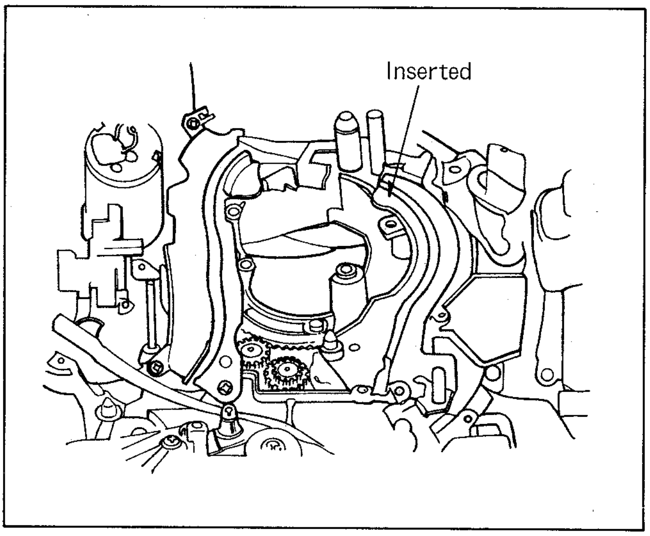


Fig. M30

(2) Fix a Take--up Side Loading Post unit holding the Small projection of the Loading Link T unit and install at shaft Holder Unit.

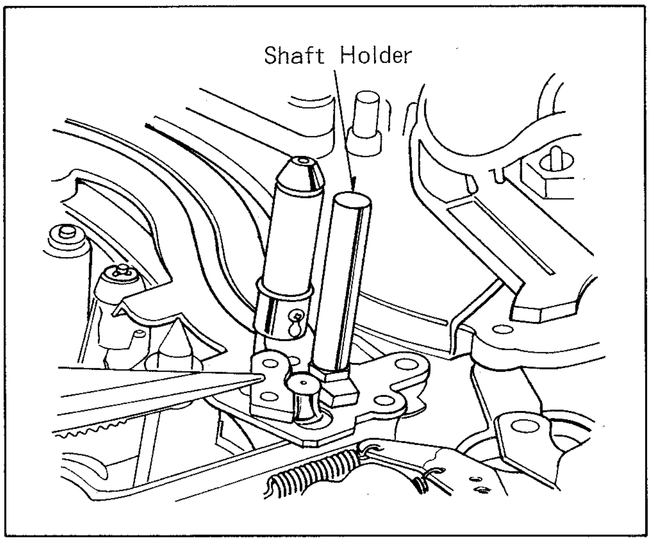


Fig. M31

[3] PROCEDURES FOR ASSEMBLING SUPPLY LOADING GUIDES AND SUPPLY LOADING POST UNIT

(1) Install the Loading Guide S–1 and S–2. Then tighten 3 screws.

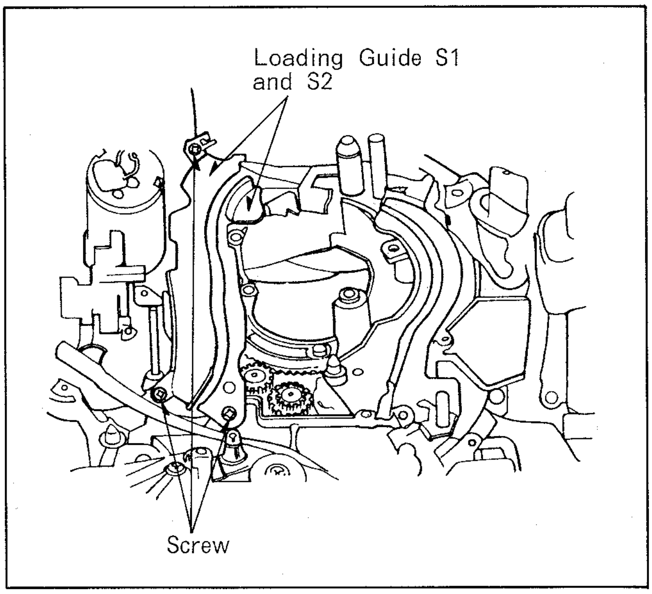


Fig. M32

(2) Slide a Supply Loading Post Unit into a gap between the Loading Guide S1 and S2 hooking a connection Rod to a connect Tie Unit as shown below.

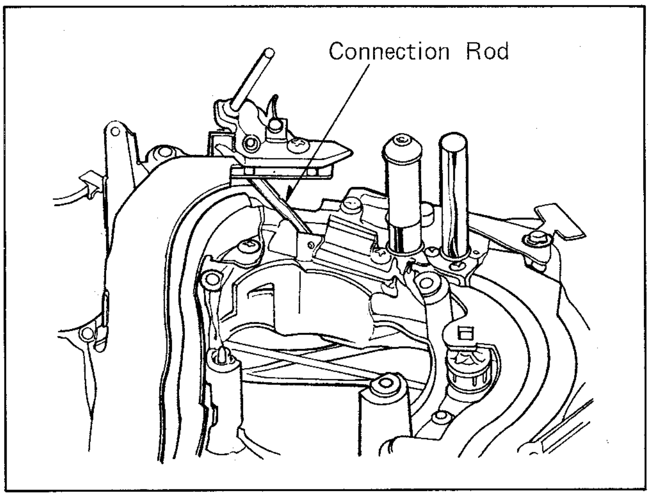


Fig. M33

(3) Install a V stopper Base and Supply Post Stopper.

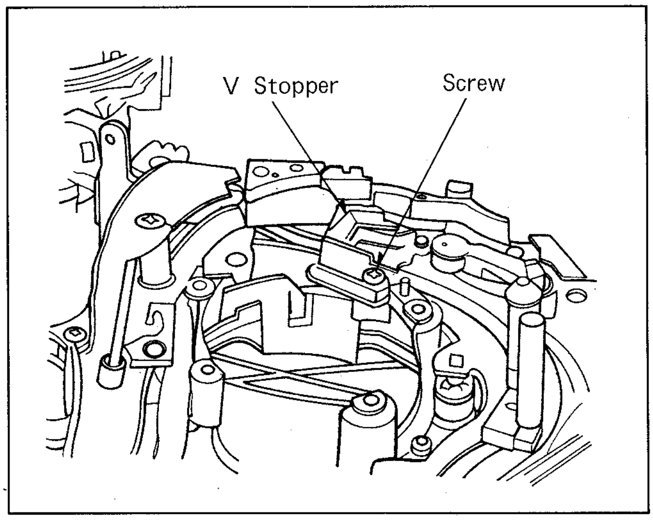


Fig. M34

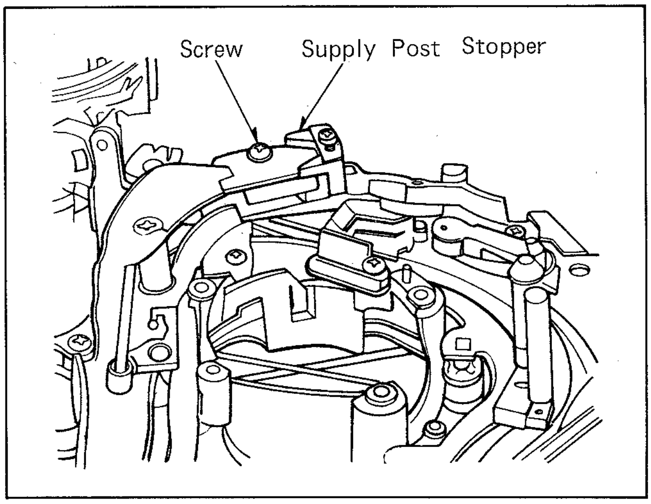


Fig. M35

(4) Set the Loading Post unit into Stop position. as Shown below.

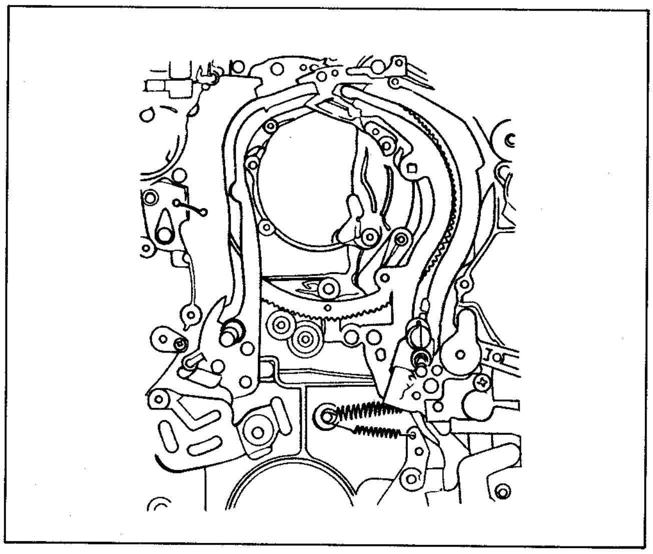


Fig. M36

[4] PROCEDURES FOR ASSEMBLING MAIN ROD

(1) Place a Main Rod inserting 3 Thrust Washers and then insert 3 washers.
After that, fix them using 2 retaining rings as shown below.

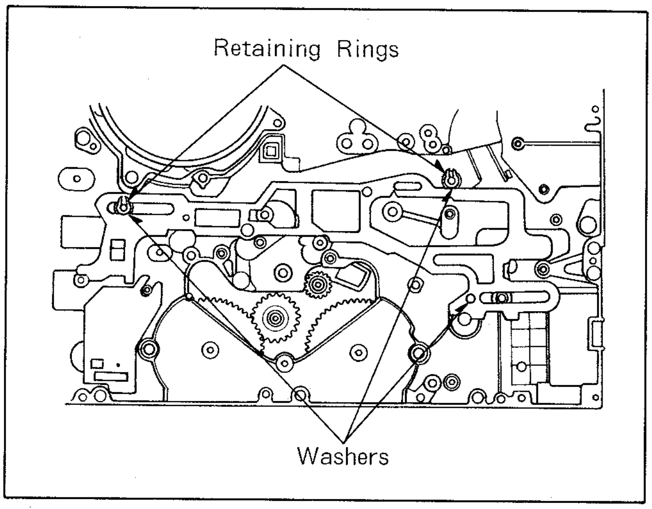


Fig. M37

(2) Install a Drive Arm kick Lever hooking a Drive Arm Kick Lever Spring and fix it using ring.

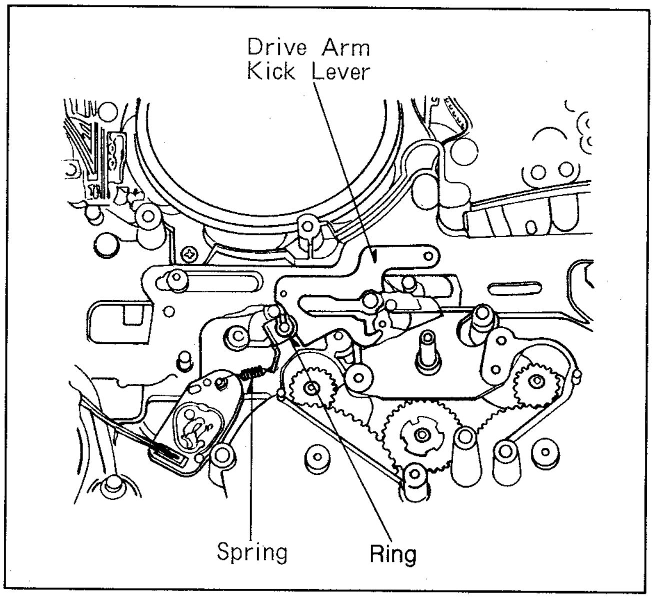


Fig. M38

[5] PROCEDURES FOR ASSEMBLING CAM GEAR AND LOADING GEAR (C)

(1) Make sure that the hole on a Main Rod Line up exactly with hole on chassis as shown below.
Make sure also, the holen a Cam Gear Line up with hole on chassis.

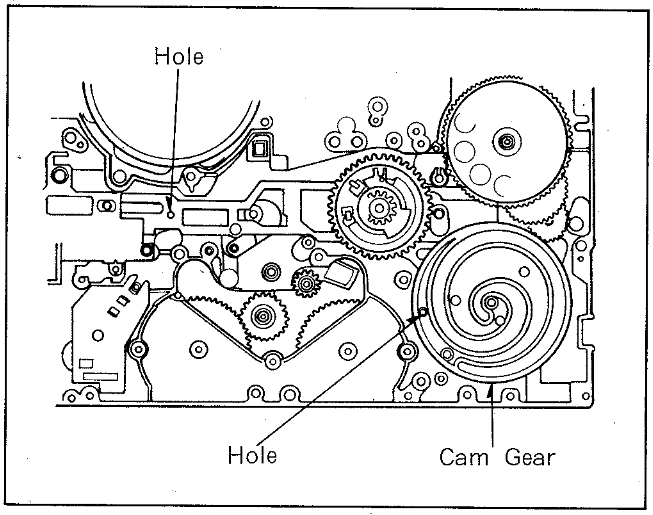


Fig. M39

(2) Install a Loading Gear (C) keeping the relation as shown below.

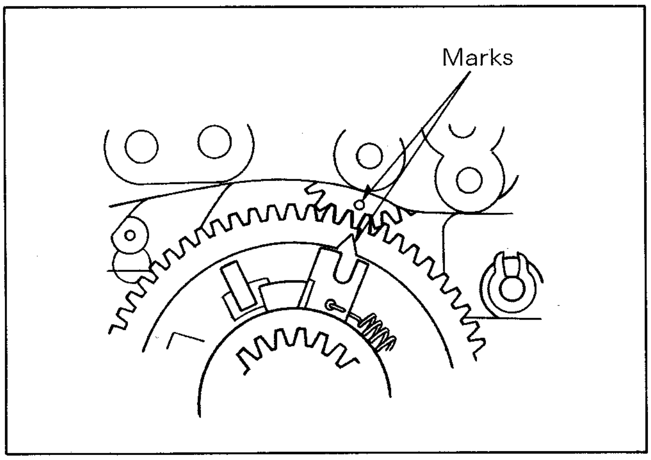


Fig. M40

(3) Install a Sector Gear as shown below.

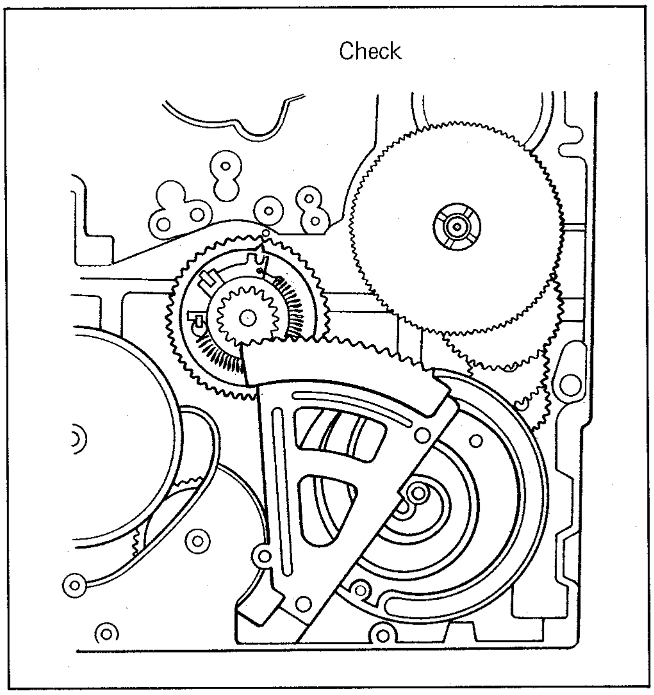


Fig. M41

(4) Fix a SG Limiter

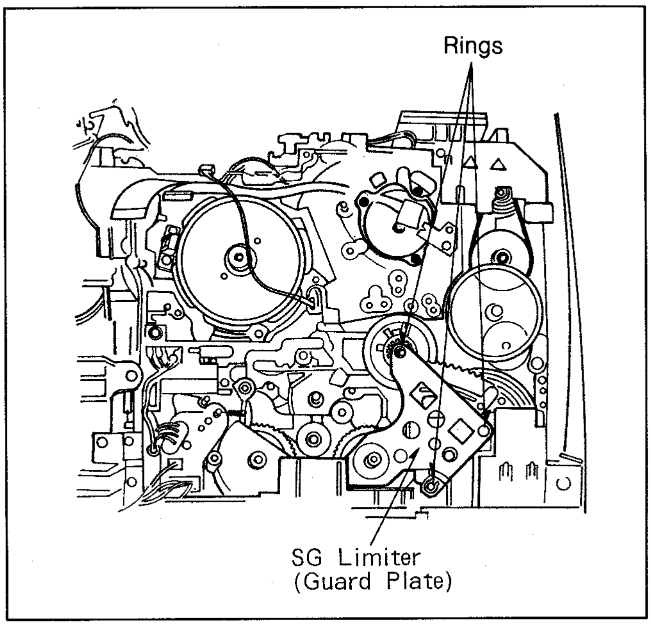


Fig. M42

[6] ASSEMBLY PROCEDURES OF MODE SELECT SWITCH

(1) Perform this procedures after confirming the complete setting of mechanical parts.
First of all, confirm that the hole on a Main Rod is meeting with a hole on a chassis.

(2) Move the moving contact of a Mode Select position as shown below.

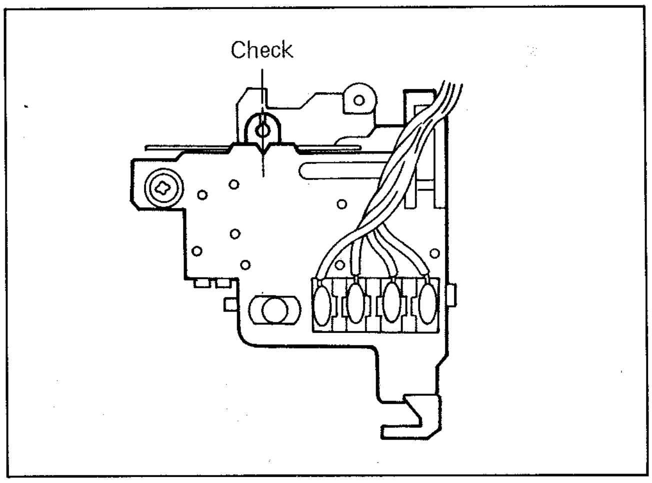


Fig M43

(3) Install the Mode Select Switch keeping these relation writen in item (1) and (2) by screwing 2 screw.

2-4. ELECTRICAL ADJUSTMENT PROCEDURES

2-4-1. ELECTRICAL ADJUSTMENT FOR CAMERA SECTION

TEST EQUIPMENT AND TOOLS

The following equipment is required for adjustment of the CAMERA section.

1) TEST EQUIPMENT

1. Oscilloscope
   Dual Trace, 50MHz, 2mV/DIV
   10:1 Probe
   1:1 Probe
2. Digital Volt Meter of VTVM
3. Frequency Counter
4. Vectorscope
5. Light Meter
6. Tripod
7. Colour Video Monitor
8. Lighting
   140 foot–candles (1400lux) on the chart surface 3200 degrees K.

2) TOOLS

- * Logarithmic Gray Scale Chart
  (Part No.:YWV2310RB99)
- * Colour Chip Chart
  (Part No.:YWV2100RB98)
- * Hunting Chart
  (Part No.:VFK0546)
- * J Chart & Ball Chart
  (Part No.:VFK0580)
- * Colour Bar Chart
  (Part No.:VFK0677)

10. Plastic Tip Driver
11. E.V.R. FIXTURE (Part No.:VFK0644)
    * ROM 10 (Part No.:VFK0701ROM10)

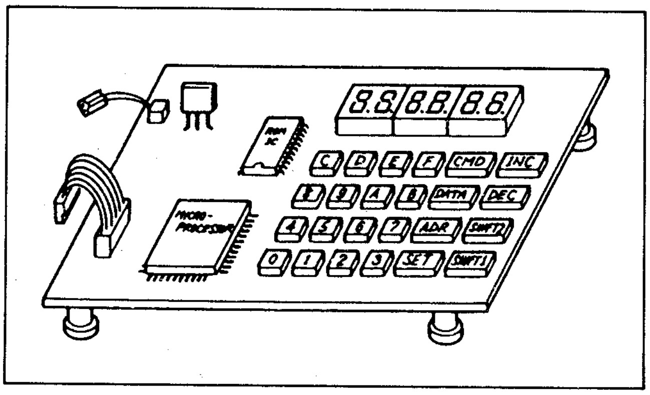


Fig. C1

12. Colour Temperature Conversion Filter
    * C12 Filter (Part No. VFK0374 or VFK0713)
    * C2 Filter (Part No. VFK0375 or VFK0716)
    * Movie Light Box VRD91MLB
    (including VFK0777 Gray Scale Chart)
13. Extension Cable
    * CONNECTION Cable for Measurement (24P)
    (Part No.VFK0766A)
    * EVR CONNECTION Cable (15P)
    (Part No.VFK0734W)
14. Camera Extension Cables

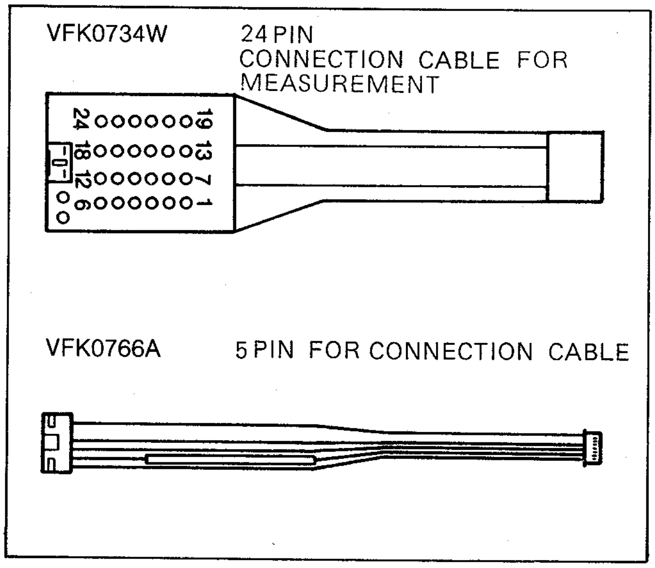


Fig. C2

(Standard Setting for Camera Adjustment)

The camera switches must be set in the following position for camera adjustment unless other wise specified each adjustment procedure.

1) White Balance Switch...White set
   (Refer to How to White Set)
   AF...Auto
   High speed shutter...OFF
   Fade...OFF
2) Iris...Center(ALC condition)
3) Use 3200 degrees kelvin light source for lighting.
4) To trigger the oscilloscope, use Video output.
5) Service work for camera unit must be performed in a dust free location to maintain the lens cleanliness.

(How to set White Balance)

1) Aim the camera at white chart.
2) Push [SHIFT 1 + 8] simultaneously.

(Description of Command)

Selecting the communication for the type of data exchange performed between EVR Fixture and camcorder.

Command	**Communication**	**Contents**
02	EVR Fixture → EEPROM	Writing the data to address of EEPROM..(Lower Digit)
12	EVR Fixture → EEPROM	Writing the data to address of EEPROM. (Upper Digit)
04	EEPROM → EVR Fixture	Reading out the data of EEPROM. (Lower Digit)
14	EEPROM → EVR Fixture	Reading out the data of EEPROM. (Upper Digit)
08	EVR Fixture → Micro Computer (RAM)	Data transmission of EVR Fixture to Micro computer (RAM).
18	EVR Fixture → Micro computer (RAM)	Data tranmission of EVR Fixture to Micro computer (RAM).
09	Micro computer (RAM) → EVR Fixture	Reading out the data of Micro computer (RAM).
19	Micro computer (RAM) → EVR Fixture	Reading out the data of Micro computer (RAM).

Fig. C3

(Error Indication)

If an error is occurs while EVR is operating, EVR will display one of the error massages listed in Fig.C4 for 2 seconds and then return to the previous indication.

Error NO.	Contents of Error	Simple checking method
1	Set the command number	
2	Set the wrong Address number	
3	VD signal from camera is not coming.	TP lead wire may be cut
4~6	Detect the error during communication	TP lead wire may be cut
7	Writing error in the EEPROM of camera.	Command or address cure wrong
8	Communication error in the EEPROM of camera	Same as above

Fig. C4

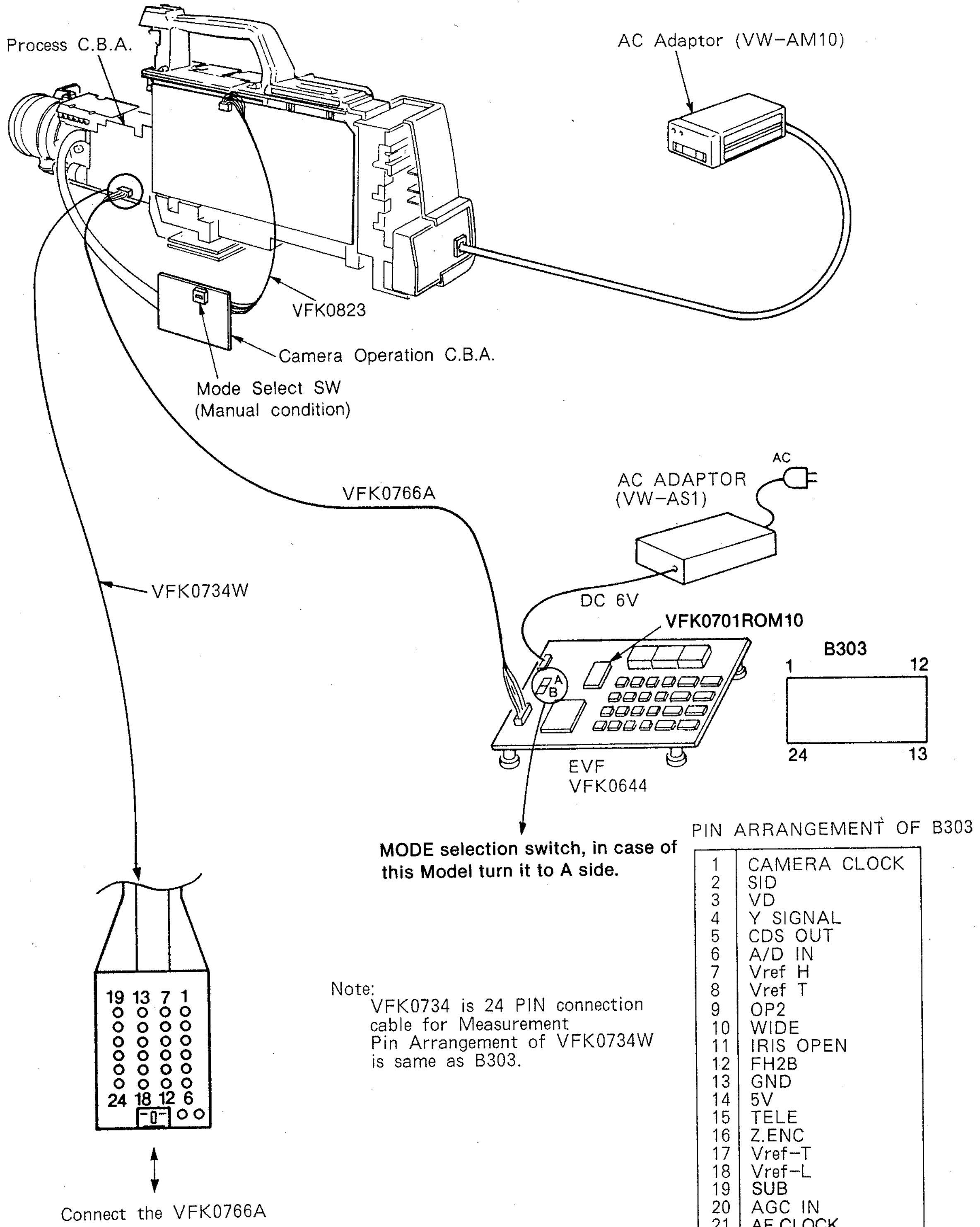
(Macro Operation)
The following operation is provided to transfer the data by one touch.

<table>
<tr><th>NO.</th><th>Buttom to be pushed</th><th>Operation</th></tr>
<tr><td>1</td><td>SHIFT 1+0</td><td>Fully opens the IRIS</td></tr>
<tr><td>2</td><td>SHIFT 1+1</td><td>Fully close the IRIS.</td></tr>
<tr><td>3</td><td>SHIFT 1+2</td><td>Minimizes AGC Gain.</td></tr>
<tr><td>4</td><td>SHIFT 1+3</td><td>Maximizes AGC Gain.</td></tr>
<tr><td>5</td><td>SHIFT 1+4</td><td>Turns Fade on.</td></tr>
<tr><td>6</td><td>SHIFT 1+5</td><td>Turns Fade off.</td></tr>
<tr><td>7</td><td>SHIFT 1+6</td><td>NOT USED</td></tr>
<tr><td>8</td><td>SHIFT 1+7</td><td>Switcing the Auto/manual Focus.
* Press the SHIFT 1+7 to select the Auto or Manual Focus.
(The focus mode selected is displayed on Address LED only while the keys are depresses)<table>
<tr><th>LED INDICATION</th><th>MODE</th></tr>
<tr><td>0</td><td>Manual Focus mode.</td></tr>
<tr><td>1</td><td>Auto Focus mode.</td></tr>
</table></td></tr>
<tr><td>9</td><td>SHIFT 1+8</td><td>White set</td></tr>
<tr><td>10</td><td>SHIFT 1+9</td><td>Making Iris manual condition.</td></tr>
<tr><td>11</td><td>SHIFT 1+A</td><td>Iris is return to Auto Mode.</td></tr>
<tr><td>12</td><td>SHIFT 1+B</td><td>AGC Gain is return to Auto Mode.</td></tr>
<tr><td>13</td><td>SHIFT 2+2</td><td>Writes the Average data and Fixed data to the EEPROM.</td></tr>
<tr><td>14</td><td>SHIFT 2+3</td><td>Automatically Calculates the Colour Reproduction and White Balance.</td></tr>
<tr><td>15</td><td>SHIFT 2+4</td><td>NOT USED</td></tr>
<tr><td>16</td><td>SHIFT 2+5</td><td>Zooms to “WIDE” position.</td></tr>
<tr><td>17</td><td>SHIFT 2+6</td><td>Stop the Zoom.</td></tr>
<tr><td>18</td><td>SHIFT 2+7</td><td>Zooms to “TELE” position.</td></tr>
<tr><td>19</td><td>SHIFT 2+8</td><td>Stop the Zoom.</td></tr>
<tr><td>20</td><td>SHIFT 2+9</td><td>Automatic Calculating for Manual Iris setting.</td></tr>
</table>

Fig. C5

PREPARATION

1) Remove both side cases referring to disassembly method.
2) Connect the E.V.R. FIXTURE and measuring equipment as shown in Fig.C6.



MODE selection switch, in case of this Model turn it to A side.

Connect the VFK0766A

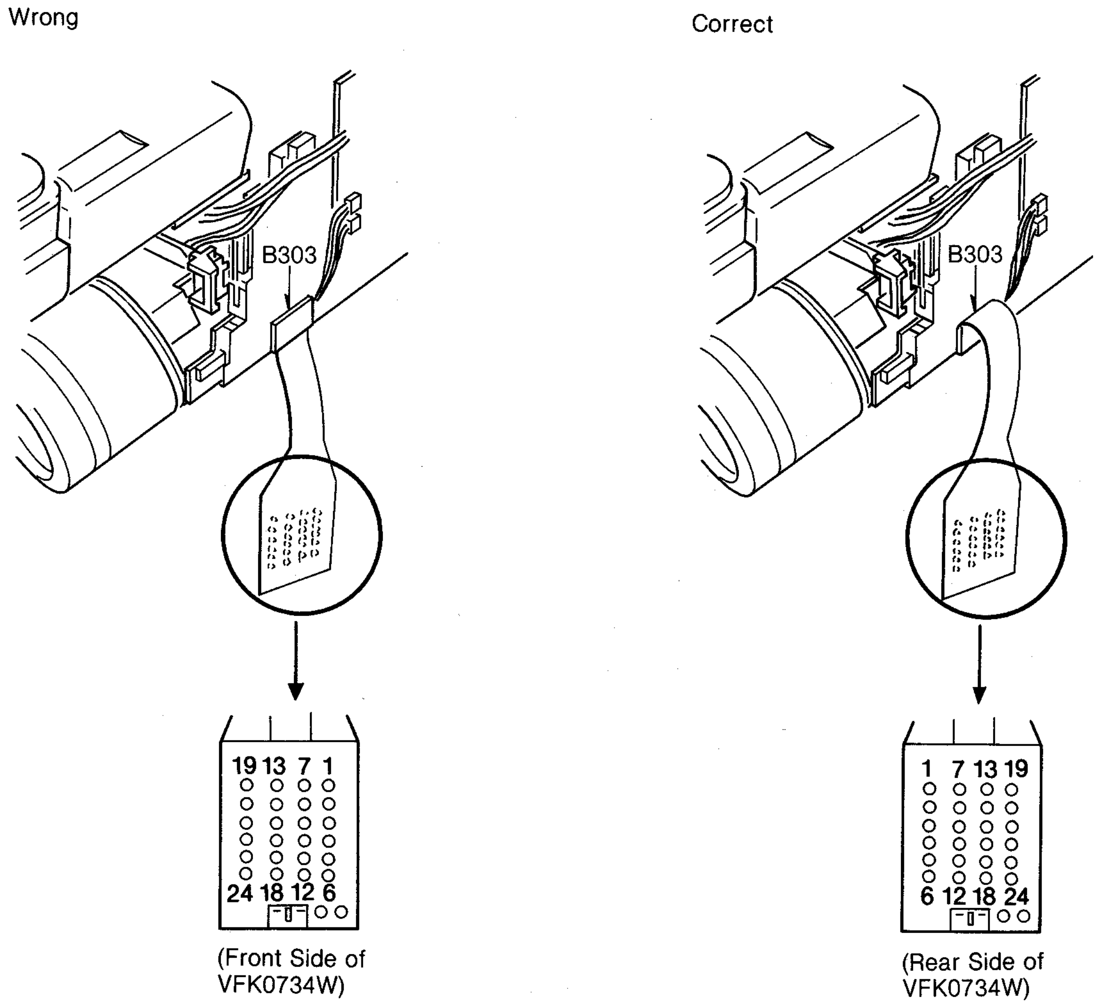
Note:
VFK0734 is 24 PIN connection cable for Measurement
Pin Arrangement of VFK0734W is same as B303.

PIN ARRANGEMENT OF B303

1	CAMERA CLOCK
2	SID
3	VD
4	Y SIGNAL
5	CDS OUT
6	A/D IN
7	Vref H
8	Vref T
9	OP2
10	WIDE
11	IRIS OPEN
12	FH2B
13	GND
14	5V
15	TELE
16	Z.ENC
17	Vref−T
18	Vref−L
19	SUB
20	AGC IN
21	AF CLOCK
22	AF DATA
23	CAMERA TEST
24	GND

Fig. C6-1

How to connect the EVR Fixture



(Front Side of VFK0734W)

(Rear Side of VFK0734W)

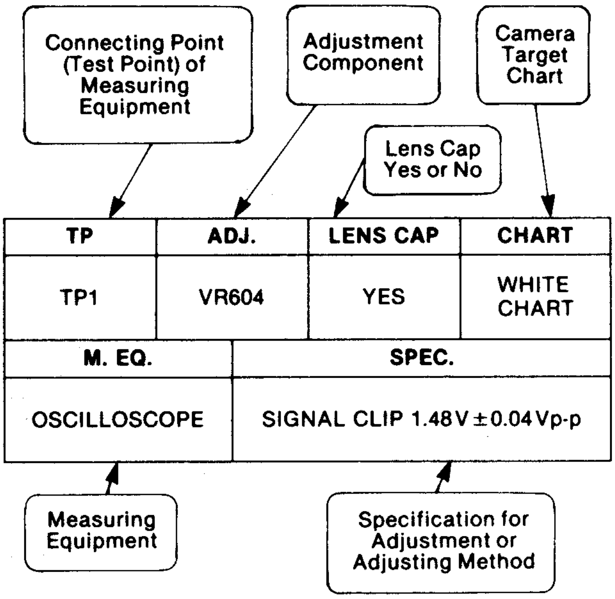
Caution:

If connect the VFK0734W between EVR and Movie camera as above figure, Iris making fully open condition and EVR can't use for Adjutment of camera.

Fig. C6-2

1) Set the mode selector on the E.V.R. Fixture to "B" side. (Refer to Fig.C27)
2) Turn on the power SW of Movie camera.
3) Turn on the power SW of E.V.R. fixture. The LED Display on E.V.R. Fixture will indicate 08,80,00. If it does not indicated, push the Reset button and/or check the cable connections between EVR and CAMERA.
4) Mode Select SW on the camera Operation C.B.A., should be "manual" condition.
If "AUTO" condition, focus is always "AUTO".

HOW TO READ THE ADJUSTMENT PROCEDURES (FOR USE OF CONVENTIONAL VR)



Note: If ⌧ appears in any block, this means it is not used or not.

Fig. C7

HOW TO READ THE ADJUSTMENT PROCEDURES (FOR USE OF E.V.R.)

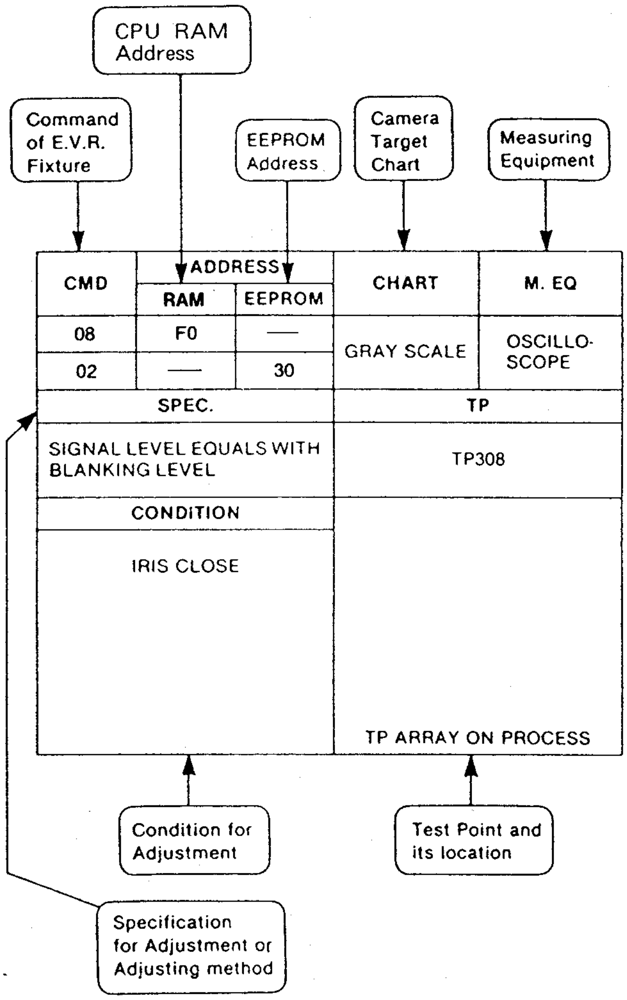


Fig. C8

1. DATA WRITING

When EEPROM is replaced, all item needs re–adjustment.

But If VFK0701.ROM10 (New ROM) is installed to the EVR Fixture (VFK0644), when the pushing [SHIFT 2 and "2" keys simultaneously,Average Data is written in to EEPROM Automatically.

		UPPER							
LOWER		0	1	2	3	4	5	6	7
0	H DIGIT	B-Y Gain 6000 2E	B-Y MAT 6000 79	B-Y WB 6000 51	B-Y limit 6000 37	B-hili 6000 3B	BACKUP 1 76	vap-cl D0	cnt lapt 25
	L DIGIT	R-Y Gain 6000 3E	R-Y MAT 6000 5E	R-Y WB 6000 4C	R-Y limit 6000 34	R-hili 6000 57	BACKUP 1 AB	vap-core 25	g lap 83
1	H DIGIT	B-Y Gain 5100 2E	B-Y MAT 5100 79	B-Y WB 5100 60	B-Y limit 5100 3B	B-hili 5100 6C	BACKUP 2 91	Hap-cor 82	cnt ck B0
	L DIGIT	R-Y Gain 5100 3E	R-Y MAT 5100 5E	R-Y WB 5100 54	R-Y limit 5100 36	R-hili 5100 6A	BACKUP 2 73	hi-l, ap 10	cnt ct E0
2	H DIGIT	B-Y Gain 4500 2E	B-Y MAT 4500 79	B-Y WB 4500 74	B-Y limit 4500 6C	B-hili 4500 93	BACKUP 3 85	cnt2-up 06	cnt lapk 25
	L DIGIT	R-Y Gain 4500 3E	R-Y MAT 4500 5E	R-Y WB 4500 4E	R-Y limit 4500 44	R-hili 4500 5B	BACKUP 3 51	cnt2-dn 80	g lapk F8
3	H DIGIT	B-Y Gain 3600 30	B-Y MAT 3600 87	B-Y WB 3600 82	B-Y limit 3600 74	B-hili 3600 A3	BACKUP 4 F0	H+gain 20	NOT USED 00
	L DIGIT	R-Y Gain 3600 3D	R-Y MAT 3600 5C	R-Y WB 3600 66	R-Y limit 3600 5B	R-hili 3600 75	BACKUP 4 17	Vap-gain 0D	NOT USED 00
4	H DIGIT	B-Y Gain 3300 50	B-Y MAT 3300 87	B-Y WB 3300 8C	C-FLAG TH 67	CSPDm 08	agclim 2 A0	c-g-ap 20	NOT USED 00
	L DIGIT	R-Y Gain 3300 36	R-Y MAT 3300 5D	R-Y WB 3300 72	CHSPD 04	CSPDs 19	EIS ON/OFF 83	c-g-sw 55	NOT USED 00
5	H DIGIT	B-Y Gain 3100 50	B-Y MAT 3100 87	B-Y WB 3100 94	B-limit 3100 7B	B-hili 3100 CA	ped-h 0A	H-st/p 30	NOT USED 00
	L DIGIT	R-Y Gain 3100 36	R-Y MAT 3100 5D	R-Y WB 3100 7B	R-limit 3100 75	R-hili 3100 CC	ped-1H-ed/p 0A	H-ed 40	NOT USED 00
6	H DIGIT	B-Y Gain 2800 44	B-Y MAT 2800 87	B-Y WB 2800 9C	B-limit 2800 7B	B-hili 2800 CA	ped-st 50	V-st/b 30	NOT USED 1D
	L DIGIT	R-Y Gain 2800 39	R-Y MAT 2800 5D	R-Y WB 2800 88	R-limit 2800 CC	R-hili 2800 CC	ped-end 90	V-ed/p 18	NOT USED 00
7	H DIGIT	STH FF	00	Bwb Llimit 51	B-limit SKY 00	B-hili SKY 37	Ped-lvl 00	H-st/b 4C	NOT USED 78
	L DIGIT	00	00	Rwb Llimit 4C	R-limit SKY 31	R-hili SKY 57	flag3 FD	sw 3E	NOT USED 00
8	H DIGIT	Hap gain 20	Hap-core 82	Bwb Hlimit 60	B-limit TREE 6C	B-hili TREE A3	flag7 FF	Y-base AC	NOT USED 10
	L DIGIT	Uap gain 10	00	Rwb Hlimit 54	R-limit TREE 31	R-hili TREE 44	flag8 03	Vap-core 05	NOT USED 00
9	H DIGIT	Houwa-U D0	HAP-NO 3C	B-Y WB 4900 60	BWBZ B 00	BWBZ C 00	Tree BK 03	cntlap 28	NOT USED 00
	L DIGIT	Houwa-L B0	PEAKLPF 11	R-Y WB 4900 54	RWBZ B 00	RWBZ C 00	P-WAITE A0	g-lap D3	NOT USED 00
A	H DIGIT	palflag F4	cls4 31	DSP Ver 11	U puls 18	Baxish Th 6C	st-alcp 05	D-Aagc 40	NOT USED 42
	L DIGIT	haloth 17	cls8 71	MODEL-NBR C4	d puls 98	Baxish Th 5B	st-alcn 05	cntc E0	NOT USED 05
B	H DIGIT	B in 05	VSTART 1D	TH 1 55	TH 3 6F	PALBR 00	open g 1 40	Ychk h A0	NOT USED 01
	L DIGIT	R in 05	ab set 93	TH 2 02	TH 4 10	LOOPTH 02	open g 2 6F	Ychk 1 28	NOT USED 18
C	H DIGIT	Outb1 9F	ina1 F3	OPS 4 31	KOTEI A 20	OPEN 1 9B	OPEN 3 0A	Yclpv 1 80	NOT USED 47
	L DIGIT	Outb2 7B	ina2 E6	ST 82	KOTEI B 20	OPEN 2 B3	OPEN G 3 82	darklv 1 00	NOT USED 00
D	H DIGIT	Outb3 5C	ina3 CD	Seki D0	KOTEI C 18	CLOSE 1 73	CLOSE 3 A7	BACK UP 1A	NOT USED 02
	L DIGIT	Outb4 4F	ina4 B3	AGC lim B0	KOTEI D 18	CLOSE 2 63	CLOSE G 3 96	BACK UP 00	NOT USED 00
E	H DIGIT	Outb0 0B	close 00	SW-set 83	keisha 03	ag cnt1 3F	CORE 03	loop gn 19	NOT USED 31
	L DIGIT	T-gain 24	open 00	MIX 03	AG-CENTER 9F	f cnd 48	CLOSE G2 A9	loop gt 00	NOT USED 3C
F	H DIGIT	A/D IN 97	AF-ap 95	OR bias 76	R-YKB 48	LOW CLIP 81	OPS8 71	clpmax E0	NOT USED 2D
	L DIGIT	AF-Vn 85	AF-AMP A6	PWM-B CF	Y-GAIN 1B	B-YKB 48	CLOSE G3 BC	PAL flkg 41	NOT USED A0

Fig. C9 Address map of all Average data.

2. VTR CARRIER BALANCE ADJUSTMENT

CMD	ADDRESS		CHART	M. EQ.
	RAM	EEPROM		
18	R:B8 B:BB	—		VECTOR-SCOPE
12, 02	—	R–Y:3F (H) B–Y:4F (L)		

SPEC.	TP
CENTRE OF ECTORSCOPE	VIDEO OUT

Purpose:
Set chroma signal black and white level.

Symptom of Misadjustment:
With a large shift, colour is added to Black and white areas in the picture.

Note:
Refer to preparation for connection of EVR.

<Preparation>
1. Connect the vectorscope to Video out.
2. Aim the camera at white chart.
3. Push [SHIFT 1 + 8] keys simultaneously for white set.
4. Place the unit to "IRIS CLOSE" by pushing [SHIFT 1 + 1] keys simultaneously.

<Adjustment for R–Y>
Push following keys in order.
5. * [CMD], [1], [8].
   * [ADR], [B], [B].
6. Push [INC] or [DEC] keys until the vectors are in or close as possible to the centre, See Fig.C10.

<Data writing for R–Y>
Push following keys in order.
7. * [CMD], [1], [2].
   * [ADR], [3], [F]. (Does not change the data).
   * [SET].

<Adjustment for B–Y>
Push following keys in order.
8 * [CMD], [1], [8].
  * [ADR], [B], [8].
9. * Push [INC] or [DEC] keys until the vectors are in or as close as possible to the centre, See Fig.C10.

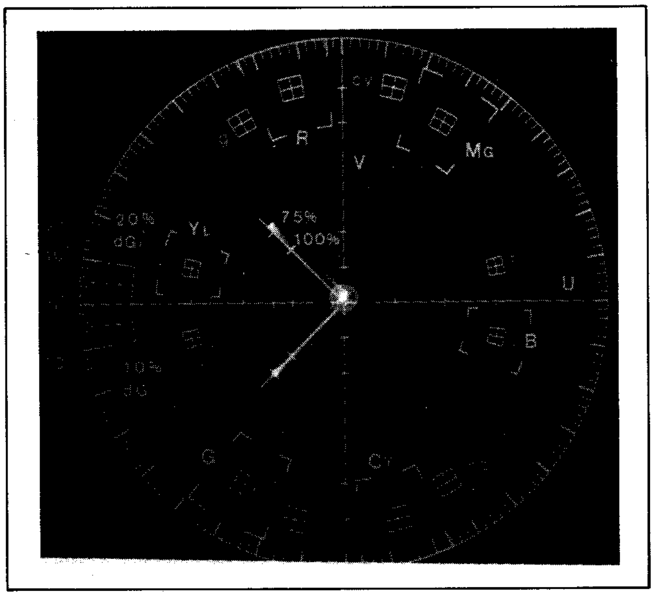
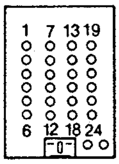


Fig. C10

<Data writing for B–Y>
Push following keys in order.
10. * [CMD], [0], [2].
    * [ADR], [4], [F]. (Does not change the data).
    * [SET].
    * [SHIFT 1 + A] (Iris is return to Auto Mode).

3. HALL AMP ADJUSTMENT

CMD	ADDRESS		CHART	M. EQ.
	RAM	EEPROM		
18	B5	—		D.V.M
	VR701	—		
02	—	IF		

SPEC.	TP
VOLTAGE B303-9 (VFK0734W-PIN 9)= VOLTAGE B303-18 (VFK0734W-PIN 18) VOLTAGE B303-9 (VFK0734W-PIN 9)= VOLTAGE B303-7 (VFK0734W-PIN 7)	B303-9 (PIN Number 9 of VFK0734W) VFK0734W-REAR 

Purpose:
Hall Amp Adjustment

Symptom of Misadjustment:
Hunting occurs or focus stops.

<Preparation>
1. Connect the jumper wire between B303–11 (VFK0734W–PIN11) and GND for Making Iris close. (Do not use EVR for IRIS close)

<Adjustment 1>
Push the following keys in order.
2. * [CMD], [1], [8].
   * [ADR], [B], [5].
3. * Push [INC] or [DEC] keys until the voltage Level at B303–9 (VFK0734W–PIN9) become Vref 1 +– 10mV. (Vref 1 = B303–18 (VFK0734W–PIN18)).

<Data Writing for Adjustment 1>
Push the following keys in order.
4. * [CMD], [0], [2].
   * [ADR], [1], [F].
   * [SET].
   * Remove the jumper wire.

<Adjustment 2>
5. Connect the jumper wire between B303–11 (VFK0734W–PIN11) and B303–14 (VFK0734W –PIN14) for fully open the Iris.
6. Adjust the VR701 so that Voltage at B303–9 (VFK0734W–PIN9) become Vref 3+–30mV. (Vref 3 = B303–7 (VFK0734W–PIN7))
7. Remove the jumper wire.

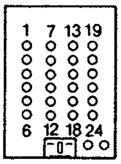
4. PLL FREQUENCY ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
CL203	C223		
M. EQ.		SPEC.	
FREQUENCY COUNTER		12.875000MHz±15Hz	

Purpose:
CCD Drive pulse adjustment

Symptom of Misadjustment:
Picture sync misoperation.

5. P WM ADJUSTMENT

CMD	ADDRESS		CHART	M. EQ.
	RAM	EEPROM		
18	B7	—		D.V.M
02	—	2F (L)		
SPEC.			TP	
			B303-9 (VFK0734W-PIN 9) VFK0734W-REAR 	

<Pre paration>
1. Set the Iris to "open". (Push [SHIFT 1 + 0]).
2. Connect the D.V.M. to B303–9 (VFK0734W–PIN9).

<Pre–Adjustment>

Push the following keys in order.

3. * [CMD], [1], [8].
   * [ADR], [B], [7].
4. Push [INC] or [DEC] keys until the Voltage level at B303–9 (VFK0734W–PIN9) become Vref 1+–50mV. (Vref 1 = Voltage at B303–7–500mV)
5. * [SHIFT 1 + 1] (fully close the Iris).
6. * [SHIFT 1 + 0] (fully open the Iris).

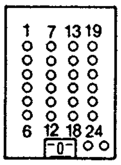
<Fine–Adjustment>
Push the following keys in order.

7. * [CMD], [1], [8].
   * [ADR], [B], [7].
8. Push [INC] or [DEC] keys until the Voltage level at B303–9 (VFK0734W–PIN9) become Vref2+–20mV. (Vref 2 = Voltage at B303–7–140mV).

<Data Writing>
Push the following keys in order.

9. * [CMD], [0], [2].
   * [ADR], [2], [F]. (Does not change the data).
   * [SET].
   * [SHIFT 1 + A] (Iris is return to Auto Mode).

6. ZOOM ENCODER AND FOCUS ENCODER ADJUSTMENT

CMD	ADDRESS		CHART	M. EQ.
	RAM	EEPROM		
18	T: B4 W: B3	—	object: 1 m (Hunting chart)	DIGITAL VOLTMETER
12	—	T: 1F (H)		
02	—	W: 0F (L)		
SPEC.			TP	
To be calculated			B303-8 (VF0734W-8) B303-17 (VFK0734W-17) VFK0734W-REAR 	
CONDITION				
• Focus Manual (SHIFT 1+7)				

Note:
1) Unless you replaced Zoom Encoder, 3rd lens (1) unit or 4th moving frame (1) unit, do not perform this adjustment. (Because this adjustment is critical).
2) Regarding the connection of EVR, refer to preparation. (Fig.C6)

<Initial Measurement and Preparation>

1. Check the voltage at B303–8(VFK0734W–PIN8) and B303–17(VFK0734W–PIN17) before changing the defective lens unit.
   For example:
   B303–8(VFK0734W–PIN8) : 3.652V
   B303–17(VFK0734W–PIN17) : 1.456V

2. Make note the potential difference between B303–8(VFK0734W–PIN8) and B303–17(VFK0734W–PIN17).
   For example:
   3.652–1.456 = 2.196V

3. Turn off the power SW.

4. Replace lens unit.

5. Loosen 2 screws of Focus encoder C.B.A. and move C.B.A. to center position as shown in Fig.C11–1.

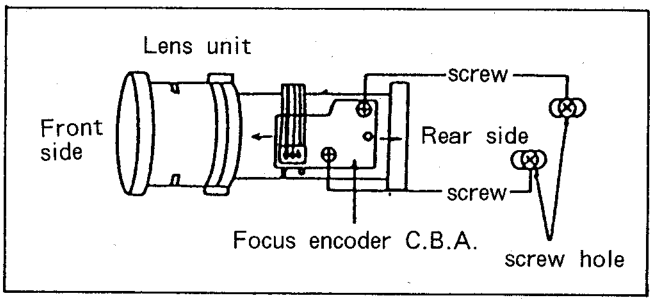


Fig. C11–1

6. Turn on the power SW.

7. Set the Focus system to Manual Focus.
(Pushing [SHIFT 1 + 7] keys simultaneously switches the Focus system between Manual and Auto Focus, "0" displayed at address LED while [SHIFT 1 + 7] keys depressed indicates Manual Focus, "1" indicates Auto Focus.

8. Zoom the lens to full tele position.
Push [SHIFT 2 + 7] keys simultaneously.

9. Aim the unit at Hunting chart from a distance 1 meter.
10. Set the focus to full (−) position.
* Turn the focus ring counterclockwise until the picture focus does not change.

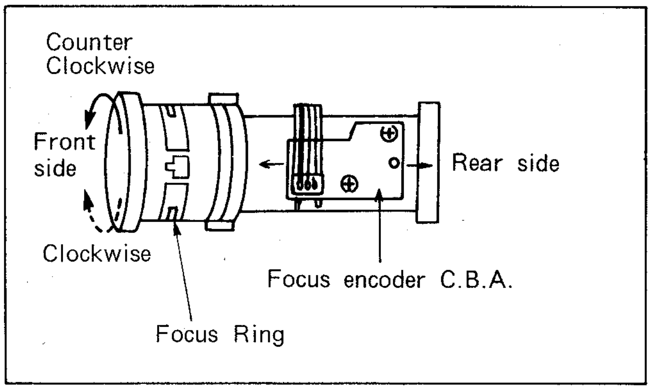


Fig. C11−2

<Adjustment for Tele Side>
Push the following keys in order.

11. * [CMD], [1], [8].
* [ADR], [B], [4].

12. * Push [INC] or [DEC] keys until the lens focus is in correct position.

[Note 1]
The focus does not change while focus voltage is being adjusted on the EVR.
To see the focus adjustment the lens unit must be zoomed from TELE to WIDE and back to TELE to activate the focus.

[Note 2]
Using the zoom controls on the EVR disables the Zoom controls of TELE/WIDE button on the camera.
Therefore, use EVR([SHIFT 2 + 7] or [SHIFT 2 + 5]) to move zoom for the TELE or WIDE position.
13. When lens focus comes to the correct position cat fully TELE Side), Push the following keys in order for store the data to EEPROM directly.
* [CMD], [1], [2].
* [ADR], [1], [F].
* [SET].

If the lens assembly cannot be focused, the Focus Encoder C.B.A. must be repositioned.
Turn the focus ring clockwise.
* If the focus improves more, the Focus Encoder C.B.A. to the rear.
* If the focus deteriorates more, the Focus Encoder C.B.A. to the front.

Return to Step(6) to reposition the Focus Encoder C.B.A..

<Adjustment for Wide Side>

14. Check the Voltage at **B303-8 (VFK0734W-PIN 8).**
15. Subtract the voltage that was noted at step(2) from the voltage at step(14).
For example:
If the voltage at B303−8(VFK0734W−PIN8) is 3.662V.
3.662 − 2.196 = 1.466
16. Set the voltage at B303−17(VFK0734W−PIN17) to 1.466V with EVR as follows.
Push the following keys in order.
* [CMD], [1], [8].
* [ADR], [B], [3].
* Push [INC] or [DEC] until the voltage at B303−17(VFK0734W−PIN17) is 1.466V.
17. Push the following keys in order for store the data to EEPROM Directly.
* [CMD], [0], [2]. (Does not change the data).
* [ADR], [0], [F].
* [SET].

<Confirm the focus when zooming to Wide Side>
18. Turn OFF and ON the Power SW.
19. Set the focus system to Manual focus as step(7).
20. Check the back focus while Zooming.
(If back focus is not good refer to following table)

1) Focus is not good at full wide side.

Adjust the data of ADR "B3" at the full Wide Side keeping the voltage at B303−(18) within +− 0.05V of the voltage in Step(16).

Check back focus While Zooming.
* If back focus is good, go to Step(19).
* If back focus is not good, stop the zoom at the position of bad focus.
Turn the focus ring clockwise and/or counter−clockwise.

If focus improves when the focus ring is turned counter−clockwise reposition the Focus Encoder C.B.A. to the front.

If focus improves when the focus ring is turned clockwise, reposition the Focus Encoder C.B.A. to the rear.

Return to Step(5) to reposition the Focus Encoder C.B.A.

2) Focus is not good−between TELE and WIDE.
Stop the zoom at the position of bad focus.
Turn the focus ring clockwise and/or counter−clockwise.
* If focus improves when the focus ring is turned counter−clockwise, reposition the Focus Encoder C.B.A. to the front.
* If focus improves when the focus ring is turned clockwise, reposition the Focus Encoder C.B.A. to the rear.
Return to Step(5) to reposition the Focus Encoder C.B.A..

7. V-SUB ADJUSTMENT

CMD	ADDRESS		CHART	M. EQ.
	RAM	EEPROM		
18	B6	—	HALOGEN LAMP	MONITOR TV
12	—	2F		
SPEC.			TP	
NO BLOOMING				

1. Zoom all the way in (full tele position or full wide position) and aim the camera at the Halogen Lamp as shown in Fig.C12.
2. Set the High Speed Shutter SW to "OFF" position.
3. Diffuse the incoming light using frosted glass or acryl plate. Place the cardboard which has been cut to "U" shape as shown in Fig.C12. between the diffusion plate and the camera.
4. Set the Iris to "Open [SHIFT 1 + 0].

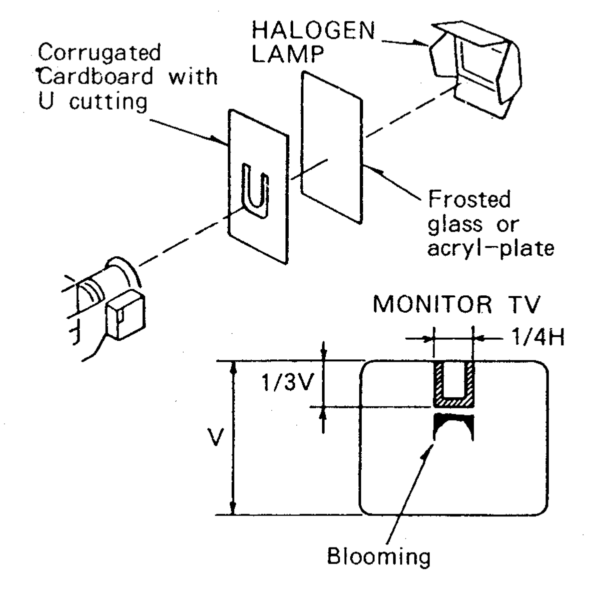

HALOGEN LAMP
Corrugated Cardboard with U cutting
Frosted glass or acryl-plate
MONITOR TV
1/4H
1/3V
V
Blooming

Fig. C12

<Adjustment>
Push the following keys in order.

5. * [CMD], [1], [8].
   * [ADR], [B], [6].
6. * Push [INC], or [DEC] keys until the blooming disappears (If blooming does not disappear completely, adjust until the blooming mimize).

<Data Writing>

Push the following keys in order.

7. * [CMD], [1], [2].
   * [ADR], [2], [F].
   * [SET].
   * [SHIFT 1 + A].
8. Confirm that the monitored picture does not contain Blooming in both High Speed Shutter "ON" and "OFF" modes even if the camera moves as shown in Fig.C13.

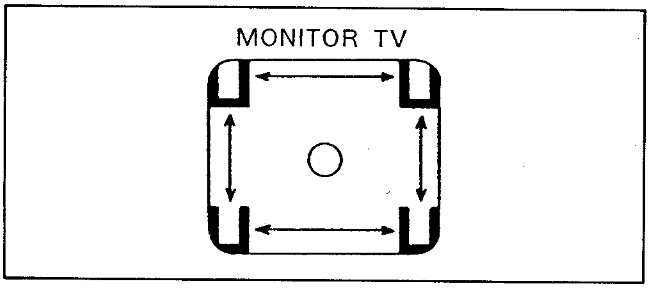
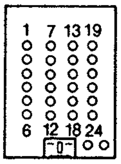


Fig. C13

8. PEDESTAL LEVEL ADJUSTMENT

CMD	ADDRESS		CHART	M. EQ.
	RAM	EEPROM		
18	BA	—		OSCILLO-SCOPE
12	—	4F		
SPEC.			TP	
A=0mV±10mV			B303-6 (VFK0734W-6) VFK0734W-REAR  	

<Preparation>

1. Cover the lens.
   Push [SHIFT 1 + 3] keys (Maximizes AGC Gain).
   Push [SHIFT 1 + 9] keys (Making Iris manual condition).
2. Connect the oscilloscope to B303-6(VFK0734W-PIN6).

<Adjustment>
Push the following keys in order.

3. * [CMD], [1], [8].
   * [ADR], [B], [A].
4. * Push [INC] or [DEC] keys until the "A" level is minimized, as shown in Fig.C14.

<Data writing>
Push the following keys in order.

5. * [CMD], [1], [2].
   * [ADR], [4], [F].
   * [SET].
6. * [SHIFT 1 + A].

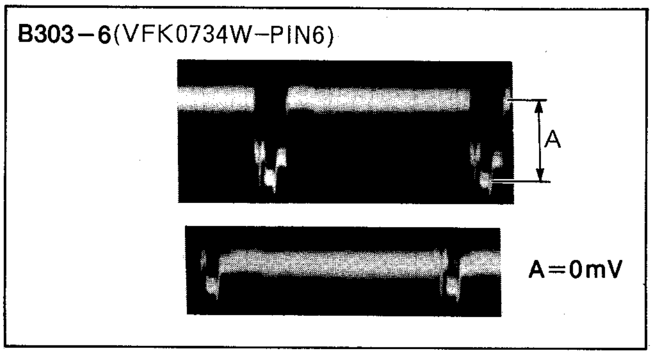
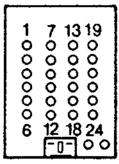


Fig. C14

9. AGC ADJUSTMENT

<table>
<tr><th rowspan="2">CMD</th><th colspan="2">ADDRESS</th><th rowspan="2">CHART</th><th rowspan="2">M. EQ.</th></tr>
<tr><th>RAM</th><th>EEPROM</th></tr>
<tr><td>18</td><td>BC</td><td>——</td><td rowspan="2">GRAY SCALE CHART</td><td rowspan="2">OSCILLO-SCOPE</td></tr>
<tr><td>12</td><td>——</td><td>6A</td></tr>
<tr><th colspan="3">SPEC.</th><th colspan="2">TP</th></tr>
<tr><td colspan="3">230mV±20mV</td><td colspan="2">B303-5 (VFK0734W-PIN 5)
B303-20 (VFK0734W-PIN 20)
VFK0734W-REAR
 </td></tr>
</table>

Purpose:
Set standard signal gain.

Symptom of Misadjustment:
The picture is sometimes too dark or too bright.

< Preset for AGC Adjustment >

1. Making Iris manual condition [SHIFT 1+9].
2. Aim the camera at Gray Scale Chart.
3. Connect the Oscilloscope to B302-5. (VFK0734W-PIN5)

<Preset 1-Rough>
Push the following keys in order.

4. * [CMD], [1], [8].
   * [ADR], [D], [F].
5. * Push [INC] or [DEC] keys until signal level at B303-5(VFK0734W-PIN5) is 300mV +- 10mV.

<Preset 2-Fine>
Push the following keys in order.

6. * [CMD], [1], [8].
   * [ADR], [D], [E].
7. * Push [INC] or [DEC] keys until signal level at B303-5(VFK0734W-PIN5) is 300mV +- 10mV.

<AGC Adjustment>
Push the following keys in order.

8. * [CMD], [1], [8].
   * [ADR], [B], [C].
9. * Push [INC] or [DEC] keys until the signal level at B303-20(VFK0734W-PIN20) is 300mV +- 20mV.

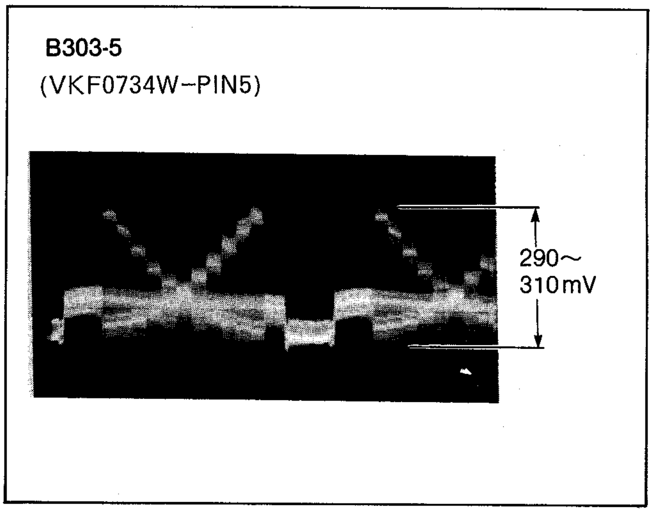


Fig. C15-1

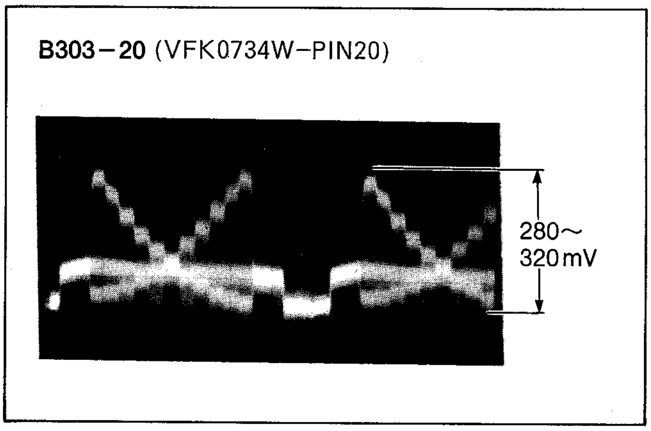
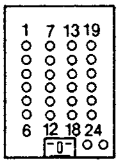


Fig. C15-2

< Data Writing >
Push the following keys in order.

10. * [CMD], [1], [2]. (Does not change the Data).
    * [ADR], [6], [A].
    * [SET].
11. * Push [SHIFT 1+A] keys (Iris return to Auto mode)

10. A/D INPUT LEVEL ADJUSTMENT

<table>
<tr><th rowspan="2">CMD</th><th colspan="2">ADDRESS</th><th rowspan="2">CHART</th><th rowspan="2">M. EQ.</th></tr>
<tr><th>RAM</th><th>EEPROM</th></tr>
<tr><td>18</td><td>B1</td><td>——</td><td rowspan="2">GRAY SCALE CHART</td><td rowspan="2">OSCILLO-SCOPE</td></tr>
<tr><td>12</td><td>——</td><td>0F</td></tr>
<tr><th colspan="3">SPEC.</th><th colspan="2">TP</th></tr>
<tr><td colspan="3">1.2V±40mV</td><td colspan="2">B303-5
(VFK0734W-PIN 5)
B303-6
(VFK0734W-PIN 6)
 </td></tr>
</table>

Purpose:
A/D converter input Level adjustment.

Symptom of Misadjustment:
The picture becomes too dark or too bright.

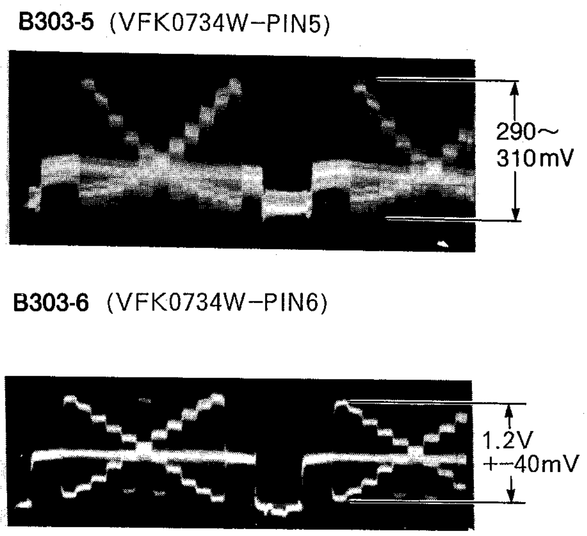
< Preset for AGC Adjustment >
1. Making Iris manual condition [SHIFT 1+9].
2. Aim the camera at Gray Scale Chart.
3. Connect the Oscilloscope to B302-5. (VFK0734W-PIN5)

< Preset 1-Rough >
Push the following keys in order.
4. * [CMD], [1], [8].
   * [ADR], [D], [F].
5. * Push [INC] or [DEC] keys until signal level at B303-5 (VFK0734W-PIN5) is 300mV+-10mV.

< Preset 2-Fine >
Push the following keys in order.
6. * [CMD], [1], [8].
   * [ADR], [D], [E].
7. * Push [INC] or [DEC] keys until signal level at B303-5 (VFK0734W-PIN5) is 300mV+-10mV.

< A/D Input level Adjustment >
8. * [CMD], [1], [8].
   * [ADR], [B], [1].
9. * Push [INC] or [DEC] keys until the signal level at B303-6 (VFK0734W-PIN6) is 1.2V+-40mV.

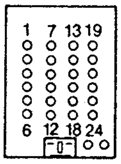
< Data Writing >
Push the following keys in order.
10. * [CMD], [1], [2]. (Does not change the Data)
    * [ADR], [0], [F].
    * [SET].
    Push [SHIFT 1+A] keys. (Iris return to Auto mode)


B303-5 (VFK0734W-PIN5)

B303-6 (VFK0734W-PIN6)

Fig. C16

11. ALC ADJUSTMENT

CMD	ADDRESS		CHART	M. EQ.
	RAM	EEPROM		
18	D4	—	GRAY SCALE CHART	OSCILLOSCOPE
02	—	2C		
SPEC.			TP	
1.20V±40mV			B303-6 (VFK0734W-PIN 6) 	

Note:
Perform this adjustment after finishing the AGC and A/D INPUT LEVEL ADJUSTMENT.

Purpose:
ALC level adjustment.

Symptom of Misadjustment:
The picture is too white or too dark.

<Preparation>

1. Set the IRIS to Auto [SHIFT 1 + A].
2. Aim the camera at Gray Scale Chart.
3. Connect the oscilloscope to B303-6(VFK0734W-PIN6).

<Adjustment>
Push the following keys in order.
4. * [CMD], [1], [8].
   * [ADR], [D], [4].
5. * Push [INC] or [DEC] keys until the signal level at B303-6(VFK0734W-PIN6) is 1.20V +-40mV.

<Data Writing>
Push the following keys in order.
6. * [CMD], [0], [2]. (Does not change the Data)
   * [ADR], [2], [C].
   * [SET].

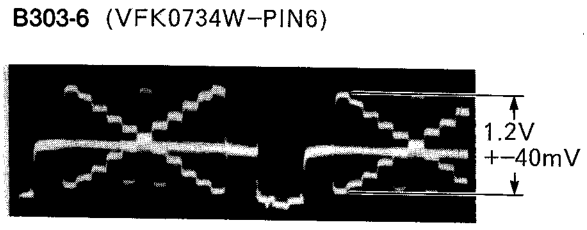

B303-6 (VFK0734W-PIN6)

Fig. C17

12. MANUAL IRIS ADJUSTMENT

NO.	ITEM	EEPROM ADDRESS	FORMULA	CMD	RESULT OF CALCULATION
1	OPEN1	4C (High digit)	ADR (2C)+24	READ: 04 WRITE: 12	
2	OPEN2	4C (Low digit)	ADR (4C)+24	READ: 14 WRITE: 02	
3	OPEN3	5C (High digit)	ADR (4C)+24	READ: 04 WRITE: 12	
4	CLOSE1	4D (High digit)	ADR (2C)−16	READ: 04 WRITE: 12	
5	CLOSE2	4D (Low digit)	ADR (4D)−16	READ: 14 WRITE: 02	
6	CLOSE3	5D (High digit)	ADR (4D)−16	READ: 04 WRITE: 12	

Calculation for Manual IRIS.

Note 1:
ADR(2C) = ALC Data

Note 2:
Push [SHIFT 2 + 9] keys simultaneously.
(All formulas for Manual Iris are performed and results are stored into EEPROM Automatically

Note 3:
If the ALC Adjustment is incorrect the Manual Iris SET UP will also be incorrect.
Be sure to carry out the ALC Adjustment procedure correctly before doing the Manual Iris Adjustment.

* Example
Item 1 : OPEN 1
Formula : ADR(2C)+24

Read out the data From Address(2C) of EEPROM as follows.

* Select read command(04) => Push [CMD],[0],[4].
* Select Address(2C) => Push [ADR],[2],[C].
* Push (SET) to Read the data => Push [SET].

When the (SET) key is pushed, the data LED will indicate the data of Address(2C).
Convert this data to decimal.
If data LED indicate(6D).
HEX(6D) = 109(Decimal Value)

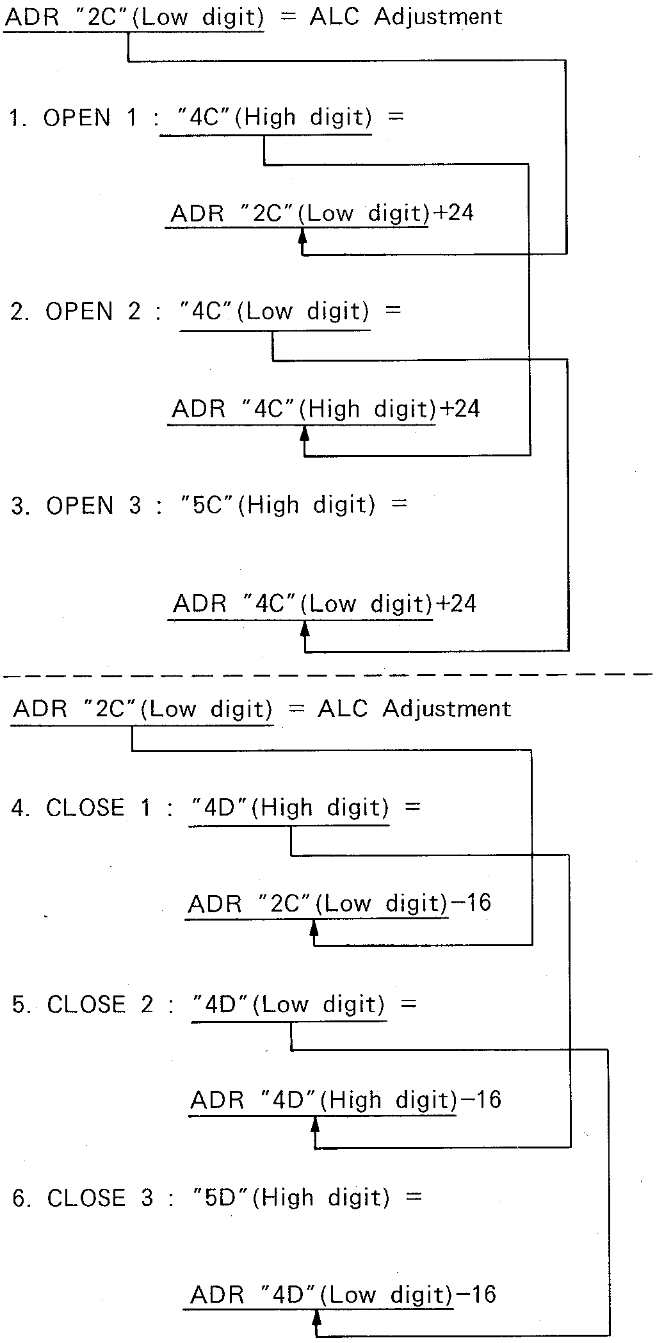
Now using the formula (2C)+24 Calculate the Reset.
(Substitute the Decimal Value for the HEX data in (2C)109+24=133.

Convert the Result to a HEX Value using the table (Fig.C18)
133(decimal)=85(in HEX CODE)

Store the above HEX Value in the EEPROM. Address(4C) High digit as follows.

* Select command(12) => Push [CMD],[1],[2].
* Select Address(4C) => Push [ADR],[4],[C].
* Set the data(85) => Push [DATA],[8],[5].
* Push (SET) to write the data => Push [SET].

Note 4:
Priority of Formula.


ADR "2C"(Low digit) = ALC Adjustment

1. OPEN 1 : "4C"(High digit) =
ADR "2C"(Low digit)+24

2. OPEN 2 : "4C"(Low digit) =
ADR "4C"(High digit)+24

3. OPEN 3 : "5C"(High digit) =
ADR "4C"(Low digit)+24

ADR "2C"(Low digit) = ALC Adjustment

4. CLOSE 1 : "4D"(High digit) =
ADR "2C"(Low digit)−16

5. CLOSE 2 : "4D"(Low digit) =
ADR "4D"(High digit)−16

6. CLOSE 3 : "5D"(High digit) =
ADR "4D"(Low digit)−16

Hexadecimal lower digit / Hexadecimal upper digic	0	1	2	3	4	5	6	7	8	9	A	b	C	② d	E	F
0	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
2	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
3	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
4	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
5	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
① 6	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111
7	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127
8	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143
9	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159
A	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175
b	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191
C	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207
d	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223
E	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239
F	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255

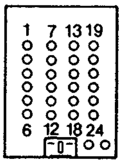
For example: If indication of EVR is "6D" (as upper digit is "6" and lower digit is "D"), a decimal value of "109" is obtained from the intersection of ① and ② in the above table.

Fig. C18 Hexadecimal–Decimal Conversion Table

(Hexadecimal–Decimal Conversion Table)

For some of adjustment items, calculation of hexadecimal data (indicated on LED of EVR Fixture) is needed to obtain the adjustment data.
In these cases, convert the hexadecimal value to decimal value before calculation and after calculation is finished reconvert the result to hexadecimal to obtain the adjustment data. Write the new hexadecimal adjustment data into EEPROM.
A hexadecimal–decimal conversion table is shown in Fig.C18.

13. Y CLIP LEVEL ADJUSTMENT

CMD	ADDRESS		CHART	M. EQ.
	RAM	EEPROM		
18	B9	—	WHITE CHART	OSCILLO-SCOPE
02	—	3F		
SPEC.			TP	
V/S=7.7:3			B303-4 (VFK0734W-PIN 4) VFK0734W-REAR 	

<Preparation>

1. Set the IRIS to "OPEN". [SHIFT1 + 0].
2. Aim the camera at white chart.
3. Connect the Oscilloscope to B303–4. (VFK0734W–PIN4)

<Adjustment>

Push the following keys in order.

4. * [CMD], [1], [8].
   * [ADR], [B], [9].
5. * Push [INC] or [DEC] keys until ratio of V and S is 7.7:3.

<Data Writing>

Push the following keys in order.

6. * [CMD], [0], [2]. (Does not change the data)
   * [ADR], [3], [F].
   * [SET].
7. * [SHIFT 1 + A] (IRIS return to Auto Mode)

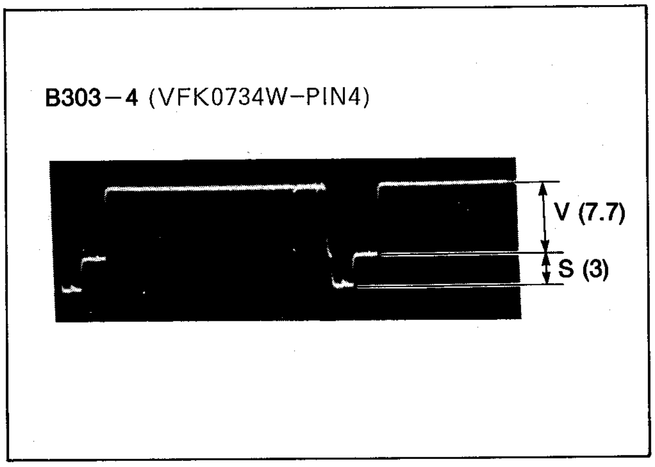


Fig. C19

14. INDOOR WHITE BALANCE ADJUSTMENT

CMD	ADDRESS		CHART	M. EQ
	RAM	EEPROM		
09	BB (R-Y) AB (B-Y)	—	WHITE CHART	VECTOR-SCOPE OR OSCILLO-SCOPE
02	—	25 (R-Y)		
12	—	25 (R-Y)		

SPEC.	TP
VECTOR COMES CENTRE OR WAVEFORM IS MINIMIZED	VIDEO OUT
CONDITION	
IRIS: ALC	

<Preparation>

1. Connect the Video out to Vectorscope.
2. Aim the camera at white chart.
   And Push [SHIFT 1 + 8] for white set.
   (Please confirm, vector came to center)

<Read Out the data for R–Y>

Push the following keys in order.

3. * [CMD], [0], [9].
   * [ADR], [B], [B].
   * [SET].
   (When the pushed [SET] key, Data LED of EVR indicate the data of white balance for R–Y)

<Data Writing for R–Y>

Push the following keys in order.

4. * [CMD], [0], [2]. (Do not change the data)
   * [ADR], [2], [5].
   * [SET].

<Read Out the data for B–Y>

Push the following keys in order.

5. * [CMD], [0], [9].
   * [ADR], [A], [B].
   * [SET].

   (When the pushed [SET] key, Data LED of EVR indicate the data of white balance for B–Y)

<Data writing for B–Y>

Push the following keys in order.

6. * [CMD], [1], [2]. (Do not change the data)
   * [ADR], [2], [5].
   * [SET].

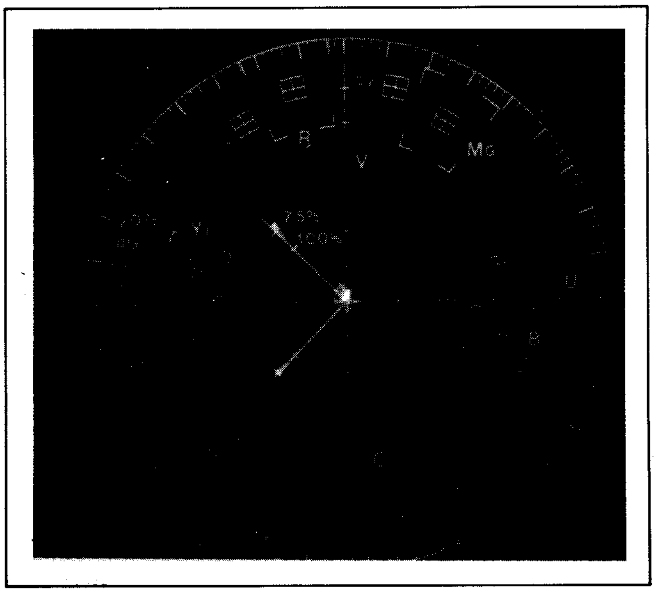


Fig. C20

15. COLOUR PHASE AND GAIN ADJUSTMENT (INDOOR)

CMD	**ADDRESS**		**CHART**	**M. EQ.**
	RAM	**EEPROM**		
08	95 (R-Y G) 97 (R-Y P) 94 (B-Y G) 96 (B-Y P)	—	COLOUR BAR CHART	VECTOR SCOPE
02	—	05 (R-Y G) 15 (R-Y P)		
12	—	05 (B-Y G) 15 (B-YP)		
SPEC.			**TP**	
RED: 104+−3 degree/PHASE 190%+−10%/GAIN (RED/BURST) 168+−3 degree/PHASE 140%+−10%/GAIN (Yellow/BURST)			VIDEO OUT	

Note:
Be sure to carry out the Indoor White Balance Adjustment before doing this Adjustment.

1. Aim the camera at Colour Bar Chart.
2. Connect the Video out to vectorscope.

<R−Y GAIN>
(Step3 to 5 are R−Y Gain Adjustment)

Push the following keys in order.

3. * [CMD], [0], [8].
   * [ADR], [9], [5].
4. * Push [INC] or [DEC] keys until phase of red and yellow vectors are as close as possible to Spec. See Fig.C21.

<Data Writing for R−Y Gain>
Push the following keys in order.

5. * [CMD], [0], [2]. (Does not change the data)
   * [ADR], [0], [5].
   * [SET].

<R−Y PHASE>
(Step6 to 8 are R−Y Phase Adjustment)
Push the following keys in order.

6. * [CMD], [0], [8].
   * [ADR], [9], [7].
7. * Push [INC] or [DEC] keys until phase of red and yellow vectors are as close as possible to Spec. See Fig.C21.

<Data Writing for R−Y Phase>

Push the following keys in order.

8. * [CMD], [0], [2]. (Does not change the data)
   * [ADR], [1], [5].
   * [SET].

<B−Y Gain>
(Step9 to 11 are B−Y Gain Adjustment)
Push the following keys in order.

9. * [CMD], [0], [8].
   * [ADR], [9], [4].
10. * Push [INC] or [DEC] keys until phase of red and yellow vectors are as close as possible to Spec. See Fig.C21.

<Data Writing for B−Y GAIN>
Push the following keys in order.

11. * [CMD], [1], [2].
    * [ADR], [0], [5].
    * [SET].

<B−Y PHASE>
(Step12 to 14 are B−Y PHASE Adjustment)
Push the following keys in order.

12. * [CMD], [0], [8].
    * [ADR], [9], [6].
13. * Push [INC] or [DEC] keys until phase of red and Yellow Vectors are as close as possible to Spec. See Fig.C21.

<Data Writing for B−Y PHASE>
Push the following keys in order.

14. * [CMD], [1], [2].
    * [ADR], [1], [5].
    * [SET].
15. Repeat the Step(3) to Step(14) unit vectors becomes within Spec.

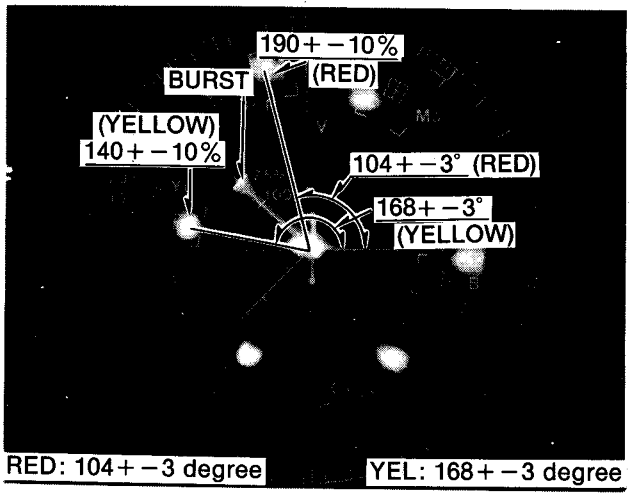


Fig. C21

16. OUTDOOR WHITE BALANCE ADJUSTMENT

CMD	**ADDRESS**		**CHART**	**M. EQ**
	RAM	**EEPROM**		
09	BB (R-Y) AB (B-Y)	—	WHITE CHART	VECTOR-SCOPE OR OSCILLO-SCOPE
02	—	21 (R-Y)		
12	—	21 (B-Y)		
SPEC.			**TP**	
VECTOR COMES CENTRE OR WAVEFORM IS MINIMIZED			VIDEO OUT	
CONDITION				
TEMPERATURE CONVERSION FILTER: VFK0713 (C12) VFK0716 (C2) IRIS: ALC				

Purpose:
Set standard white level for each colour temperature.

Symptom of Misadjustment:
White becomes bluish or reddish.

<Preparation>

1. Connect the Video Out to Vectorscope.
2. Cover the lens with colour temperature conversion filter VFK0713 and VFK0716 to imitate the Outdoor lighting.
3. Aim the camera at white chart, and push [SHIFT 1 + 8] keys for white set.
   (Please confirm, vectors came to center)

<Read Out the data for R−Y>

Push the following keys in order.

4. * [CMD], [0], [9].
   * [ADR], [B], [B].
   * [SET].
   (When the pushed [SET] key, Data LED of EVR indicate the data of white balance for R−Y)

<Data Writing for R−Y>

Push the following keys in order.

5. * [CMD], [0], [2]. (Does not change the data)
   * [ADR], [2], [1].
   * [SET].

<Read Out the data for B−Y>
Push the following keys in order.

6. * [CMD], [0], [9].
   * [ADR], [A], [B].
   * [SET].

   (When the pushed [SET] key, data LED of EVR indicate the data of white balance for B−Y)

<Data Writing for B−Y>
Push the following keys in order.

7. * [CMD], [1], [2]. (Does not change the data)
   * [ADR], [2], [1].
   * [SET].

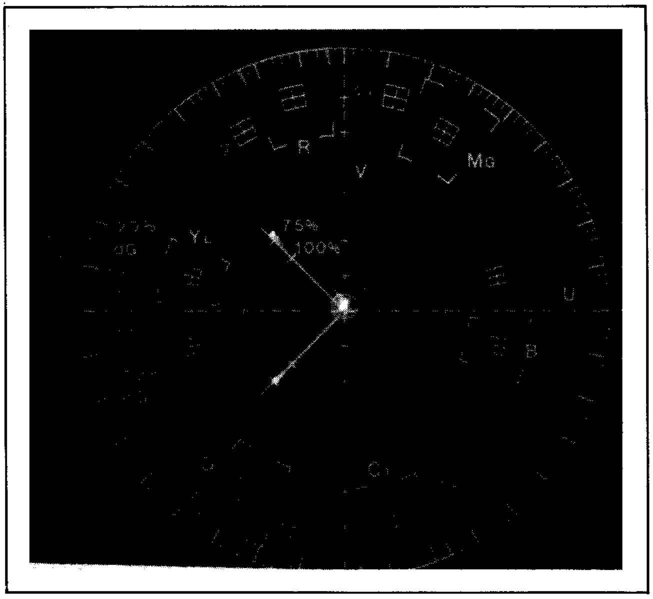


Fig. C22

17. COLOUR PHASE AND GAIN ADJUSTMENT (OUTDOOR)

CMD	ADDRESS		CHART	M. EQ.
	RAM	EEPROM		
08	95 (R-Y G) 97 (R-Y P) 94 (B-Y G) 96 (B-Y P)	—	COLOUR BAR CHART	VECTOR SCOPE
02	—	01 (R-Y G) 11 (R-Y P)		
12	—	01 (B-Y G) 11 (B-YP)		

SPEC.	TP
RED: 104+−3 degree/ PHASE, 190%+−10% GAIN (Red/BURST) YEL: 168+−3 degree/ PHASE, 140%+−10% GAIN Yellow/BURST)	VIDEO OUT

Note:
Be sure to carry out the Outdoor white balance Adjustment before doing this Adjustment.

<Preparation>

1. Connect the Video output to vectorscope.
2. Aim the camera at colour bar chart and cover the lens with colour temperature conversion filter VFK0713 and VFK0716 to imitate the outdoor lighting.

<R−Y Gain>
(Step3 to 5 are R−Y Gain Adjustment)

Push the following keys in order.

3. * [CMD], [0], [8].
   * [ADR], [9], [5].
4. * Push [INC] or [DEC] keys until phase of red and yellow vectors are as close as possible to Spec. See Fig.C22.

<Data Writing for R−Y Gain>
Push the following keys in order.

5. * [CMD], [0], [2]. (Do not change the data)
   * [ADR], [0], [1].
   * [SET].

<R−Y PHASE>
(Step6 to 8 are R−Y Phase Adjustment)

Push the following keys in order.

6. * [CMD], [0], [8].
   * [ADR], [9], [7].
7. * Push the [INC] or [DEC] keys until phase of red and yellow vectors are as close as possible to Spec. See Fig.C23.

<Data Writing for R−Y Phase>

Push the following keys in order.

8. * [CMD], [0], [2]. (Do not change the data)
   * [ADR], [1], [1].
   * [SET].

<B-Y Gain>
(Step9 to 11 are B-Y Gain Adjustment)

Push the following keys in order.

9. * [CMD], [0], [8].
   * [ADR], [9], [4].
10. * Push [INC] or [DEC] keys until phase of red and yellow vectors are as close as possible to Spec. See Fig.C23.

<Data Writing for B-Y Gain>

Push the following keys in order.

11. * [CMD], [1], [2]. (Do not change the data)
    * [ADR], [0], [1].
    * [SET].

<B-Y PHASE>
(Step12 to 14 are B-Y Phase Adjustment)

Push the following keys in order.

12. * [CMD], [0], [8].
    * [ADR], [9], [6].
13. * Push [INC] or [DEC] keys until phase of red and yellow vectors are as close as possible to Spec. See Fig.C23.

<Data Writing for B-Y Phase>

Push the following keys in order.

14. * [CMD], [1], [2]. (Do not change the data)
    * [ADR], [1], [1].
    * [SET]
15. Repeat the Step(3) to Step(14) until vectors becomes within Spec. as shown in Fig.C23.

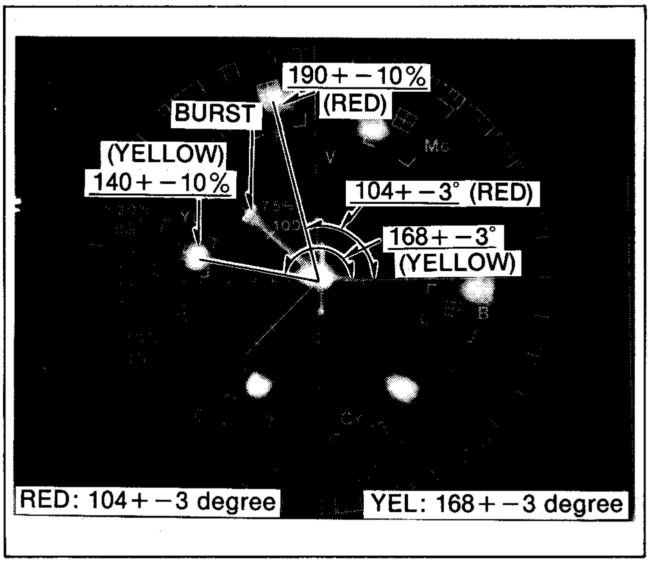


Fig. C23

18. DATA WRITING FOR COLOUR REPRODUCTION AND WHITE BALANCE

Purpose:
Each adjustment voltage is recorded in EEPROM as digital data. For colour reproduction adjustments such as white balance, phase and gain adjustments, the adjustments have only been performed for indoor lighting (3200 degree kelvin) and outdoor lighting (5600 degree kelvin). The EEPROM requires the data for other lighting conditions such as 3600 degree kelvin, 4500 degree kelvin and 6000 degree kelvin. In order to supply the rest of the data the following calculation has to be done and the results entered in the proper address of EEPROM.

Misentering:
White balance and colour reproduction in lighting conditions between indoor and outdoor are poor.

Note 1:
VFK0701ROM10 (New ROM) for EVR must be installed in EVR fixture.
Mode selector should be "A" side.

1. Push [SHIFT 2 + 3] key simultaneously.
   (All formulas in Fig.C24, are performed and results stored in EEPROM automatically)

Note 2:
How to calculate and enter the data manually.
You can do calculation and entering the data to EEPROM manually as follows;

(For example)
ITEM : R-Y GC 36

FORMULA : ADR05+0.882x(ADR01-ADR05)

EEPROM ADDRESS : 03

1) Read Out the data.
   ADR05 : Set the command to "04".
   Set the address to "05".
   Push the "SET" button.
   The number which is indicated in "DATA" LED is a data of ADR05(Address "05") for example, if indicated data is "56", substitute "56" to ADR05. (This is hexadecimal number)
   The same as above, read out the data from address "01".
   For example if data which is read out is ADR01="6C", ADR05="56" above formula becomes;
   R-Y GC 36 = 56+-1.00x(6C-56).
2) Convert the hexadecimal data into decimal number using conversion table. (Shown in Fig.C18) For example, "56" in hexadecimal is "86" in decimal from intersection of 5 and 6.
   Substitute it into the formula.
   Therefore,
   R-Y GC 36 = 86+0.882x(108-86)
   = 86+0.882x(22)
   = 105
3) Convert the result "105" to hexadecimal using conversion table (Fig.C18).
   "105" decimal is "69" in hexadecimal.
   Write the "69" into EEPROM address "03".
   * Set the command to [02].
   * Set the address to [03].
   * Set the data [69].
   * Push the [SET] key.

Calculation for Colour Reproduction

NBR	ITEM	EEPROM ADDRESS	CMD	RESULT OF CALCULATION	FORMULA
(1)	R-Y GC 36	03 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “05” + 0.882 × (ADR “01” − ADR “05”)
(2)	R-Y GC 45	02 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “05” + 1.000 × (ADR “01” − ADR “05”)
(3)	R-Y GC 28	06 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “05” + 0.412 × (ADR “01” − ADR “05”)
(4)	R-Y GC 60	00 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “05” + 1.000 × (ADR “01” − ADR “05”)
(5)	R-Y GC 33	04 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “05” + 0.000 × (ADR “01” − ADR “05”)
(6)	R-Y MAT 28	16 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “15” + 0.000 × (ADR “11” − ADR “15”)
(7)	R-Y MAT 36	13 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “15” − 0.091 × (ADR “11” − ADR “15”)
(8)	R-Y MAT 45	12 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “15” − 1.000 × (ADR “11” − ADR “15”)
(9)	R-Y MAT 60	10 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “15” + 1.000 × (ADR “11” − ADR “15”)
(10)	R-Y MAT 33	14 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “15”
(11)	B-Y GC 28	06 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “05” + 0.333 × (ADR “01” − ADR “05”)
(12)	B-Y GC 36	03 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “05” + 0.741 × (ADR “01” − ADR “05”)
(13)	B-Y GC 45	02 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “05” + 1.000 × (ADR “01” − ADR “05”)
(14)	B-Y GC 60	00 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “05” + 1.000 × (ADR “01” − ADR “05”)
(15)	B-Y GC 33	04 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “05” − 0.000 × (ADR “01” − ADR “05”)
(16)	B-Y MAT 28	16 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “15” + 0.000 × (ADR “11” − ADR “15”)
(17)	B-Y MAT 36	13 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “15” − 0.000 × (ADR “11” − ADR “15”)
(18)	B-Y MAT 45	12 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “15” − 1.000 × (ADR “11” − ADR “15”)
(19)	B-Y MAT 60	10 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “15” + 1.000 × (ADR “11” − ADR “15”)
(20)	B-Y MAT 33	14 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “15”
(21)	R-Y WB 28	26 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “25” + 0.255 × (ADR “25” − ADR “21”)
(22)	R-Y WB 33	24 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “25” − 0.300 × (ADR “25” − ADR “21”)
(23)	R-Y WB 36	23 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “25” − 0.575 × (ADR “25” − ADR “21”)
(24)	R-Y WB 45	22 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “25” − 1.125 × (ADR “25” − ADR “21”)
(25)	R-Y WB 49	29 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “25” − 1.125 × (ADR “25” − ADR “21”)
(26)	R-Y WB 60	20 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “25” − 1.186 × (ADR “25” − ADR “21”)
(27)	R-Y WB L-LIM	27 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “25” − 1.186 × (ADR “25” − ADR “21”)
(28)	R-Y WB H-LIM	28 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “25” − 1.000 × (ADR “25” − ADR “21”)
(29)	B-Y WB 28	26 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “25” + 0.048 × (ADR “25” − ADR “21”)
(30)	B-Y WB 33	24 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “25” − 0.214 × (ADR “25” − ADR “21”)
(31)	B-Y WB 36	23 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “25” − 0.405 × (ADR “25” − ADR “21”)
(32)	B-Y WB 45	22 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “25” − 0.643 × (ADR “25” − ADR “21”)
(33)	B-Y WB 49	29 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “25” − 1.000 × (ADR “25” − ADR “21”)
(34)	B-Y WB 60	20 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “25” − 1.269 × (ADR “25” − ADR “21”)
(35)	B-Y WB L-LIM	27 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “25” − 1.269 × (ADR “25” − ADR “21”)
(36)	B-Y WB H-LIM	28 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “25” − 1.000 × (ADR “25” − ADR “21”)

Calculation for Auto White Balance

NBR	ITEM	EEPROM ADDRESS	CMD	RESULT OF CALCULATION	FORMULA
(1)	BH 28	46 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “25” + 0.864 × (ADR “25” − ADR “21”)
(2)	BH 30	45 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “25” + 0.864 × (ADR “25” − ADR “21”)
(3)	BH 36	43 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “25” + 0.182 × (ADR “25” − ADR “21”)
(4)	BH 45	42 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “25” − 0.100 × (ADR “25” − ADR “21”)
(5)	BH 51	41 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “25” − 0.788 × (ADR “25” − ADR “21”)
(6)	BH 60	40 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “25” − 1.500 × (ADR “25” − ADR “21”)
(7)	BH TR	48 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “25” + 0.182 × (ADR “25” − ADR “21”)
(8)	BH SKY	47 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “25” − 1.561 × (ADR “25” − ADR “21”)
(9)	Baxisth	4A (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “25” − 0.788 × (ADR “25” − ADR “21”)
(10)	BL 28	36 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “25” − 0.523 × (ADR “25” − ADR “21”)
(11)	BL 30	35 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “25” − 0.523 × (ADR “25” − ADR “21”)
(12)	BL 36	33 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “25” − 0.643 × (ADR “25” − ADR “21”)
(13)	BL 45	32 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “25” − 0.788 × (ADR “25” − ADR “21”)
(14)	BL 51	31 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “25” − 1.500 × (ADR “25” − ADR “21”)
(15)	BL 60	30 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “25” − 1.561 × (ADR “25” − ADR “21”)
(16)	BL TR	38 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “25” − 0.788 × (ADR “25” − ADR “21”)
(17)	BL SK	37 (HIGH DIGIT)	READ : 14 WRITE: 12		ADR “00”
(18)	RH 28	46 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “25” + 1.152 × (ADR “25” − ADR “21”)
(19)	RH 30	45 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “25” + 0.375 × (ADR “25” − ADR “21”)
(20)	RH 36	43 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “25” − 0.150 × (ADR “25” − ADR “21”)
(21)	RH 45	42 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “25” − 0.833 × (ADR “25” − ADR “21”)
(22)	RH 51	41 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “25” − 0.470 × (ADR “25” − ADR “21”)
(23)	RH 60	40 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “25” − 0.939 × (ADR “25” − ADR “21”)
(24)	RH TR	48 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “25” − 1.348 × (ADR “25” − ADR “21”)
(25)	RH SK	47 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “25” − 0.939 × (ADR “25” − ADR “21”)
(26)	Rxisth	4A (LOW DIGIT)	READ : 04 WRITE: 02		ADR “25” − 0.833 × (ADR “25” − ADR “21”)
(27)	RL 28	36 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “25” + 0.375 × (ADR “25” − ADR “21”)
(28)	RL 30	35 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “25” − 0.150 × (ADR “25” − ADR “21”)
(29)	RL 36	33 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “25” − 0.833 × (ADR “25” − ADR “21”)
(30)	RL 45	32 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “25” − 1.348 × (ADR “25” − ADR “21”)
(31)	RL 51	31 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “25” − 1.682 × (ADR “25” − ADR “21”)
(32)	RL 60	30 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “25” − 1.742 × (ADR “25” − ADR “21”)
(33)	RL TR	38 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “25” − 1.803 × (ADR “25” − ADR “21”)
(34)	RL SK	37 (LOW DIGIT)	READ : 04 WRITE: 02		ADR “25” − 1.803 × (ADR “25” − ADR “21”)

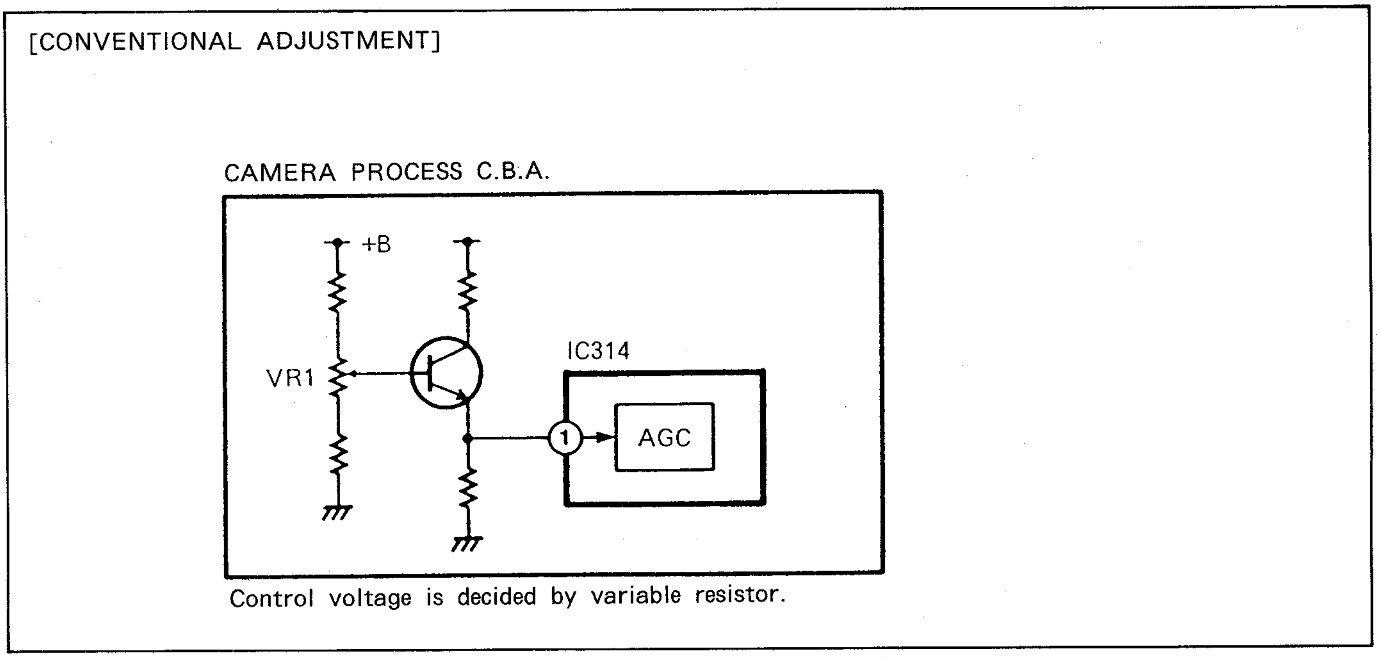
Fig. C24–2

19. ADDITIONAL FOR HOW TO USE E.V.R.

E.V.R. FIXTURE

Camera Process section uses a memory IC called a E.E.P.R.O.M.(Electrical Erasable Programmable Read Only Memory) that replaces the variable resistor in conventional camera process. In the conventional camera process, each adjustment point was adjusted by turning variable resistors as shown in Fig.C25. In the Movie Camera adjustment voltage is recorded in the EEPROM as 8 bit digital data. The EEPROM supplies the recorded adjustment voltage to the adjustment point as shown in Fig.C26.

The data in the EEPROM can be changed electrically. The E.V.R.(Electric Variable Resistor) has been designed to change the 8 bit data of EEPROM in process circuit. The E.V.R. can also communicate directly with the RAM of the micro processor to change each control voltage. In normal operation the EEPROM would send the voltage data to RAM where the digital data is used to changed the adjustment values in the various circuits. Using the E.V.R. you can change the data stored in the EEPROM easily there by adjusting the camera process section. And the E.V.R. can also send the data to the RAM directly to confirm the adjustment.


[CONVENTIONAL ADJUSTMENT]

Control voltage is decided by variable resistor.

Fig. C25

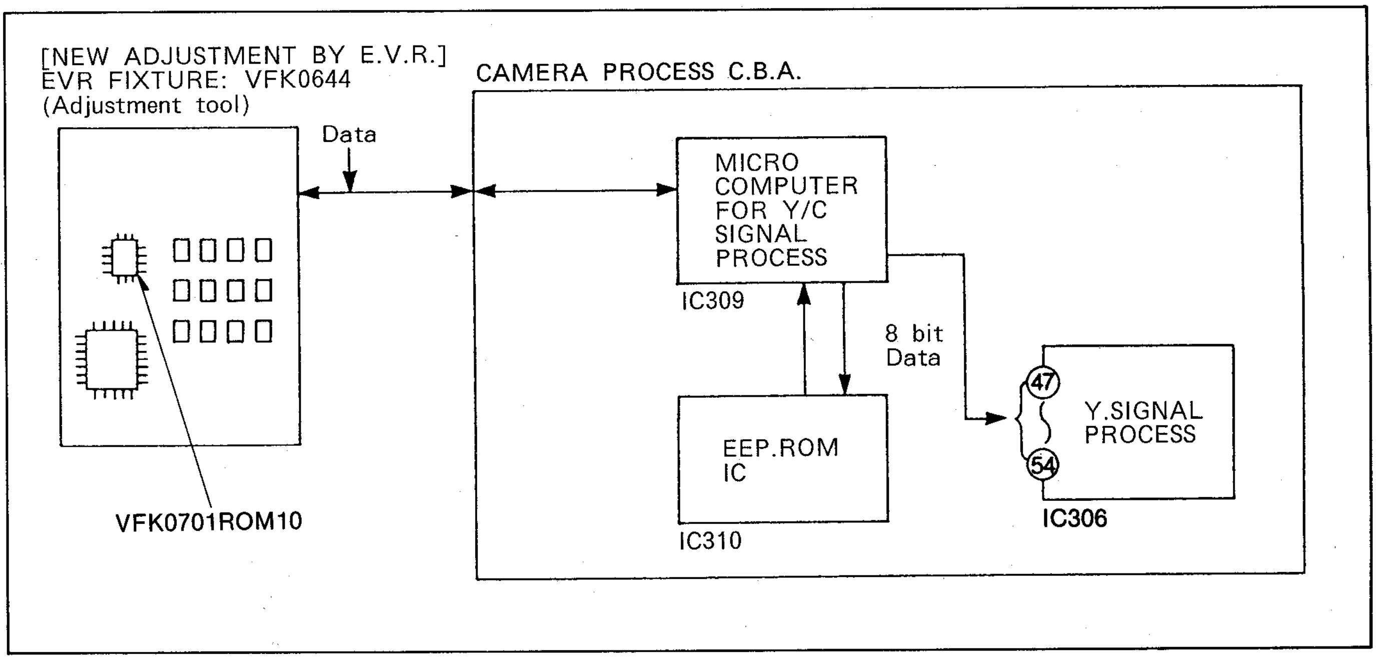
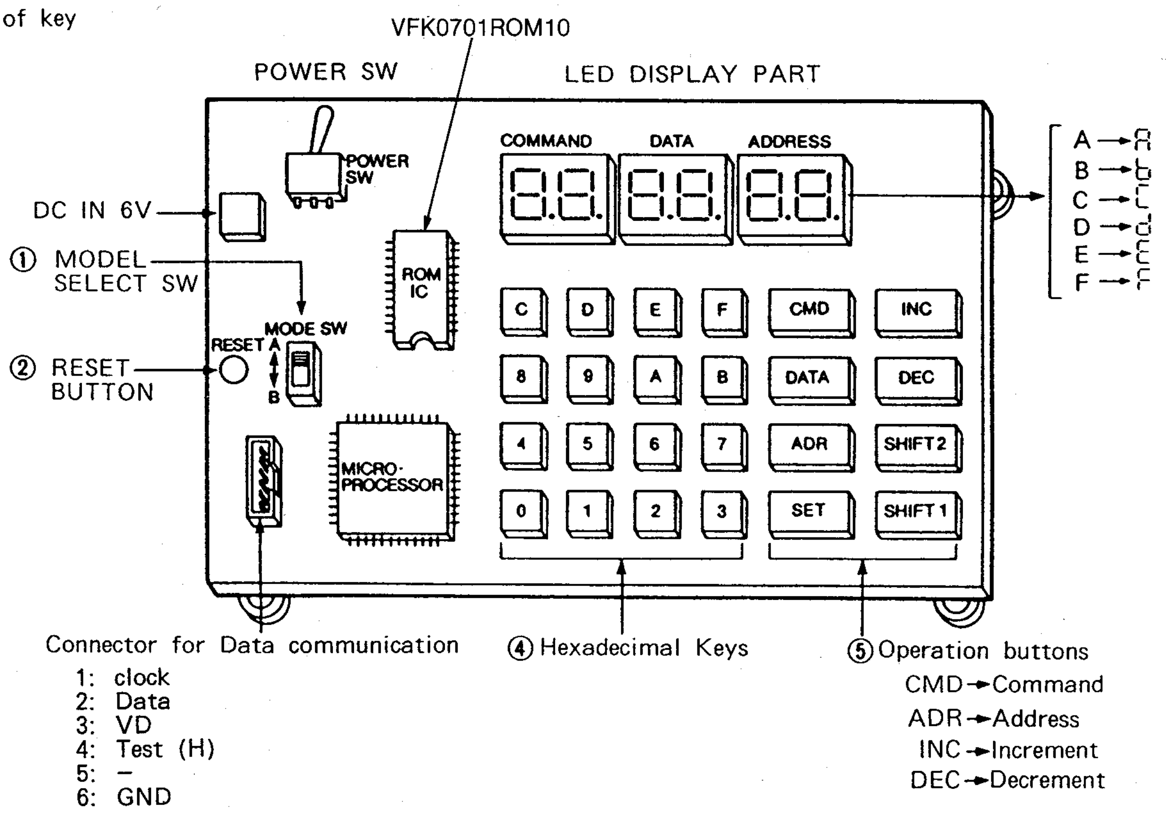

[NEW ADJUSTMENT BY E.V.R.]
EVR FIXTURE: VFK0644
(Adjustment tool)

Fig. C26

Name of key



NO.	NAME	DESCRIPTION
①	MODE SW	MODEL selection switch. In case of this model turn it to A side
②	RESET BUTTON	After Power is on, if operation is not stable, push this SW.
③	ROM IC	ROM IC of which Programing (to operate E.V.R) is memorized in. In the future, to cope with new camcorder servicing, this ROM IC could be replaced to new version.
④	HEXADECIMAL KEYS	Key buttons of 16 pieces (from "O" to "F"). These are used when "COMMAND", "DATA" or "ADDRESS" is set.
⑤	OPERATION BUTTONS	The buttons to operate writing, reading or setting the data.
	CMD: Command button	This is used to decide the which mode (command) between E.V.R and camcorder (for example, data writing or reading) to perform.
	DATA: Data button	For changing Data.
	ADR: Address button	To appoint the EEPROM address or RAM address.
	SET: Set button	To perform the appointed command (for example reading or writing).
	INC: Incliment DEC: Decliment	Increase or decrease the data one by one (+1, −1)
	SHIFT 1 button	To carry out macro operation (while pushing with hexadecimal keys) SHIFT 1 button is used. (Macro operations will be described later)
	SHIFT 2 button	To carry out macro operation(while pushing with hexadecimal keys) SHIFT 2 button is used (Macro operations will be described later.)

Fig. C27

(Before Adjusting How to use the E.V.R. Fixture)

1) How to read out the data which is being stored in EEPROM.
Connect the E.V.R. Fixture as shown in Fig.C3.

Result:
Adjustment value of AGC has been set for "6A". It is advisable to read out the data like this and make a note of it before writing the new data so that if a error should occur you can rewrite original data.

Item	Proceduring Order		Buttons to be Pushed	LED Indication
For Example, Reading out the data of AGC Adjustment comunication from camcorder to E.V.R. EEPROM—► E.V.R.	1	Set the Command mode to "14", "14" is read out command. (Refer to command description)	$\boxed{\text{CMD}}$ $\boxed{1}$ $\boxed{4}$	LED lights up 14/80 00 Command setting
	2	Set the Address of EEPROM	$\boxed{\text{ADR}}$ $\boxed{6}$ $\boxed{\text{A}}$	14 80 6A. Address setting of EEPROM LED lights up
	3	Read out the data	$\boxed{\text{SET}}$ Push this for 2 seconds	14 09.6A data for AGC for example LED lights up

Fig. C28

2) Writing the New Data.

(1) Search and Write Procedure
(For example : AGC Adjustment).

Confirmation:
Confirm whether data is written correctly or not.

Procedure:
1. Set the Command to [04].
2. Set the Address to [41].
3. Push the [SET] button.
4. The number which is indicated on DATA LED is a data which has been written.

Item	Proceduring Order		Buttons to be Pushed	LED Indication
For Example, writing the AGC adjustment data. E.V.R.—► EEPROM	1	Set the command to "18".	$\boxed{\text{CMD}}$ $\boxed{1}$ $\boxed{8}$	Command for search mode.
	2	Set the Address of RAM to "BC" E.V.R.—► RAM (communication from E.V.R. to RAM)	$\boxed{\text{ADR}}$ $\boxed{\text{B}}$ $\boxed{\text{C}}$	LED lights up. 18/80 6C
	3	Adjustment Push "DEC" or "INC" button so that AGC at B302-20 becomes 240	Search with $\boxed{\text{INC}}$ or $\boxed{\text{DEC}}$	18 91 6C. LED lights up
	4	Change the command to "12"	$\boxed{\text{CMD}}$ $\boxed{1}$ $\boxed{2}$	LED lights up 12/91 6C Command for Direct Writing

Fig. C29

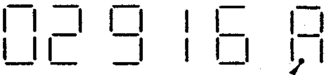
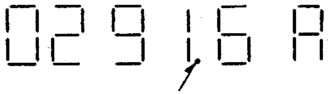
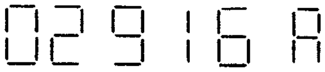
Item		Proceduring Order	Buttons to be Pushed	LED Indication
	5	Set the address of EEPROM to "6A"	ADR 4 F	address of EEPROM  LED lights up
	6	Do not change the data after adjustment	DATA 9 1	 LED lights up
	7	Write the data	SET Push this for 2sec.	LED disappear 

Fig. C30

3) Direct Writing Procedure

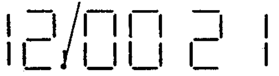
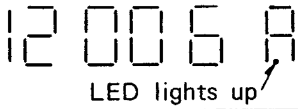
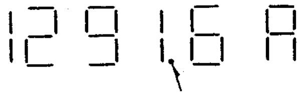
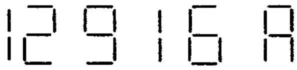
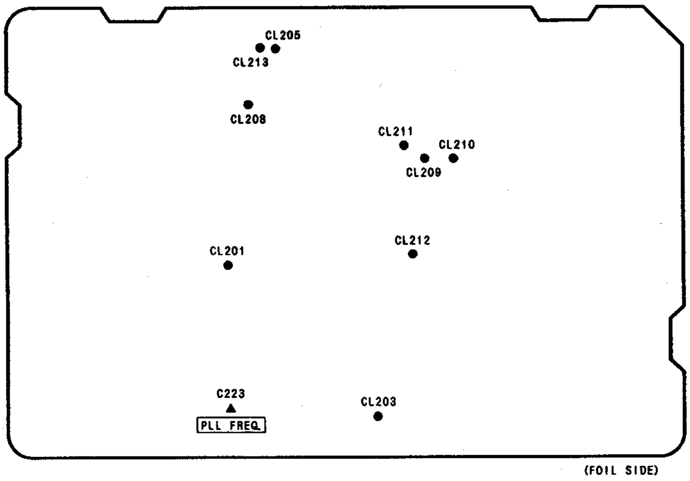
Item		Proceduring Order	Buttons to be Pushed	LED Indication
For Example, writing the AGC adjustment data	1 2 3	**Searching the best Point.** **same as (1)**	**same as (2)**	**same as (2)**
	4	Change the command to "01"	CMD 1 2	LED lights up  Command for Direct writing
	5	Set the address of EEPROM to "6A"	ADR 6 A	address of EEPROM  LED lights up
	6	Set the data of best point "91"	DATA 9 1	 LED lights up
	7	**Write the data**	SET **Push this for 2sec.**	LED disappear. 

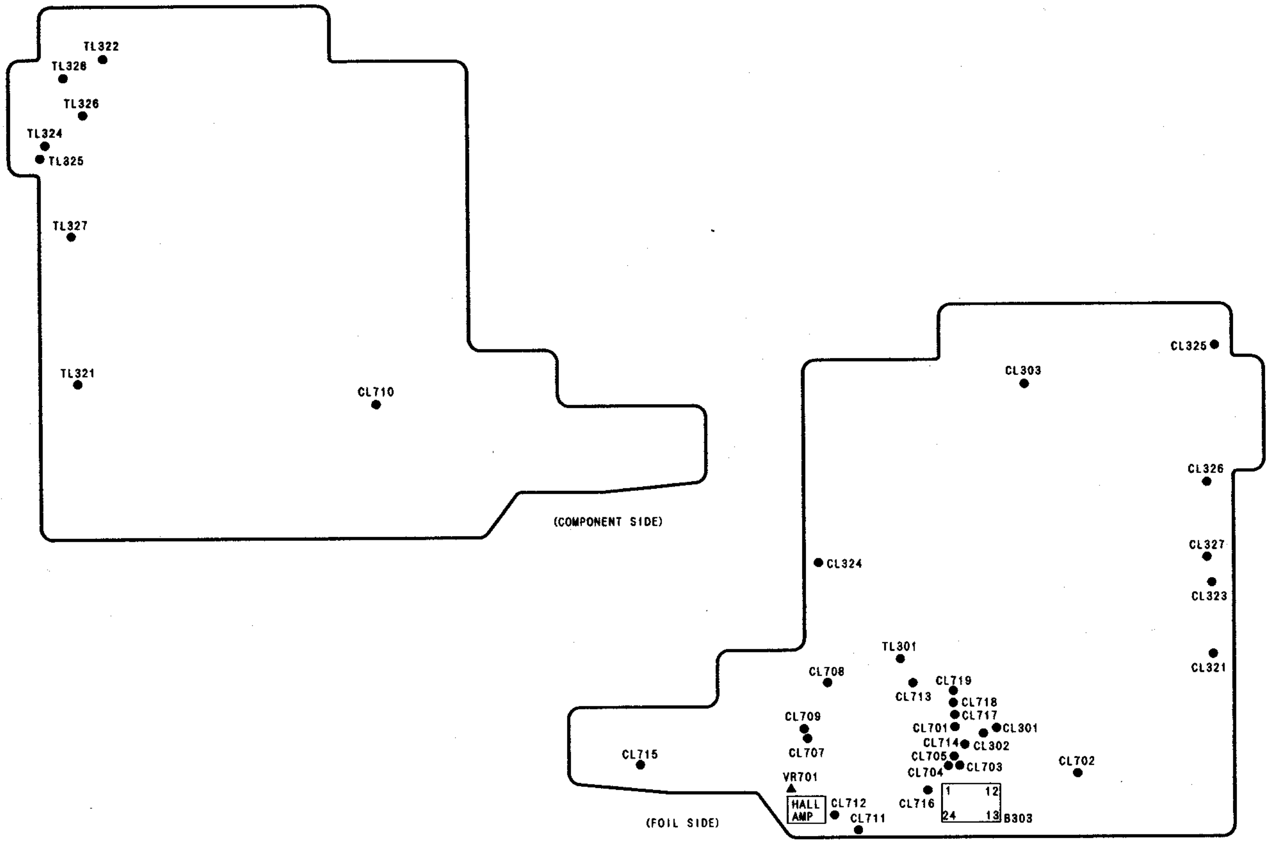
Fig. C31

LOCATION OF TEST POINTS AND CONTROLS (1)

CCD DRIVE C.B.A.

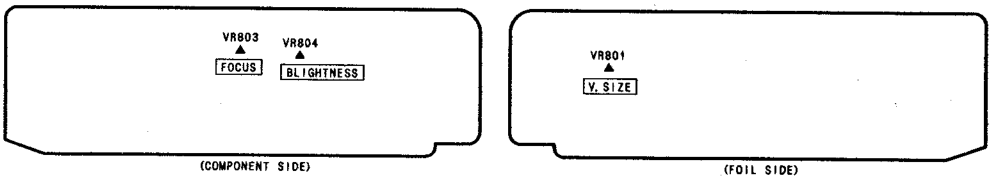


PROCESS & AF C.B.A.



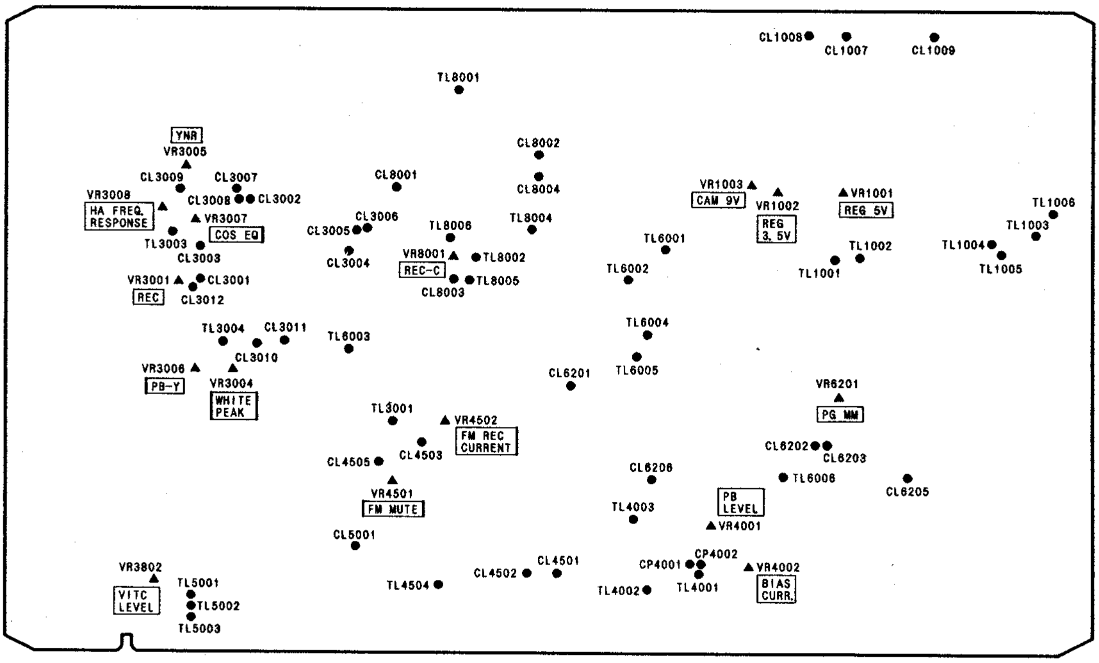
LOCATION OF TEST POINTS AND CONTROLS (2)

E.V.F. C.B.A.



(COMPONENT SIDE) (FOIL SIDE)

MAIN C.B.A.



(COMPONENT SIDE)

2-4-2. ELECTRICAL ADJUSTMENT FOR E.V.F. SECTION

The following adjustment are for Electric Viewfinder.

(1) Connect the Viewfinder plug to the E.V.F. connector on the unit.
(2) The camera circuit must be completely aligned before viewfinder adjustments are made.

1. CENTERING ADJUSTMENT

(1) Aim the camera at the registration chart.
(2) Adjust the deflection Yole centering magnets turning them so that the picture on monitor TV is centered.

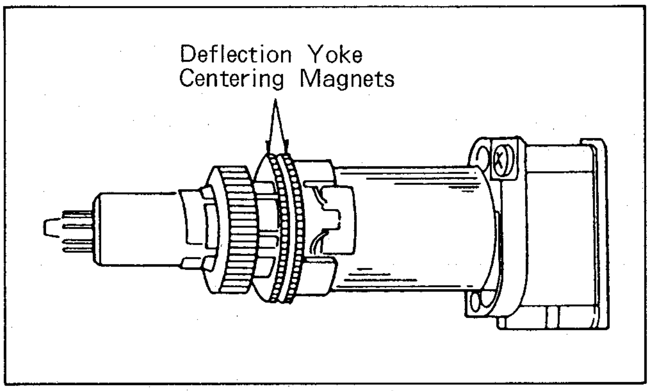


Fig. E1

2. FOCUS ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
	VR803	NO	BALL CHART
M. EQ.		**SPEC.**	
VIEWFINDER		BEST RESOLUTION	

NOTE VR803: E.V.F. C.B.A.
1) Aim the connect at Ball chart.
2) Adjust the VR803 for best resolution in viewfinder.

3. V.SIZE ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
	VR801	NO	GRAY SCALE CHART
M. EQ.		**SPEC.**	
VIEWFINDER		VERTICAL SIZE IS FIXED	

NOTE:
VR801 : E.V.F. C.B.A.

(1) Aim the camera at the gray scale chart.
(2) Adjust the vertical size(VR801) so that the Vertical size is correct and the picture does not roll as shown in Fig.E2.

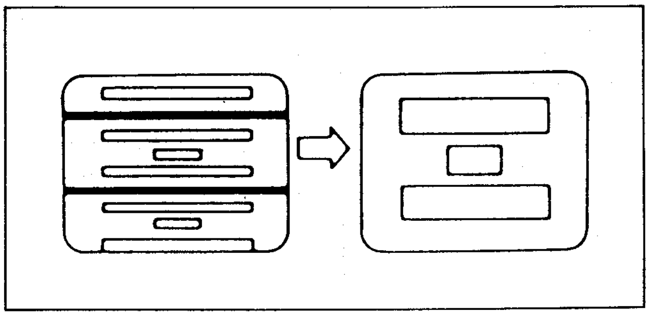


Fig. E2

4. BRIGHTNESS ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
	VR804	NO	GRAY SCALE CHART
M. EQ.		**SPEC.**	
VIEWFINDER		NATURAL GRADATION	

NOTE:
VR804 : E.V.F. C.B.A.

(1) Aim the camera at gray scale chart.
(2) Adjust the brightness control(VR804) so that the black and white bars in the E.V.F. screen are the same as they are in the monitor TV screen.

2-4-3. ELECTRICAL ADJUSTMENT FOR VTR SECTION

TEST EQUIPMENT AND TOOLS

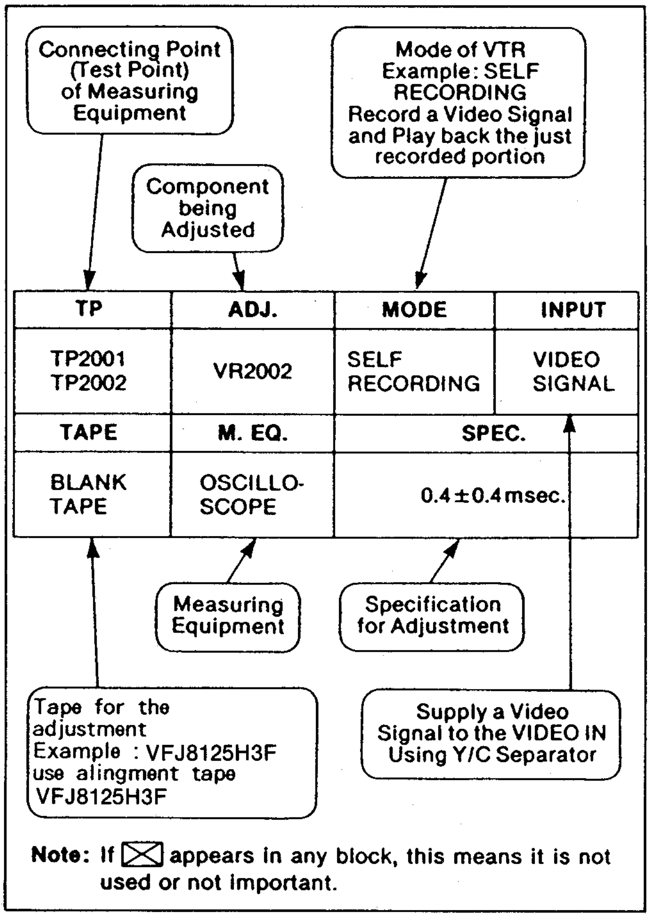
The following equipment is required for adjustment of the VTR section of VHS–Movie.

1. VTVM (Vacuum Tube Volt Meter)
   DVM (Digital Volt Meter)
   Voltage Range: 0.01–50V)
2. Dual Trace Oscilloscope
   Voltage Range: 0.06–50V/div
   Frequency Range: 0–50MHz
   Probe: 10:1 or 1:1
3. Frequency counter
   Frequency Range: 0–10MHz
4. Signal Generator (Sinewave)
   Frequency Range: 0–10MHz
5. Video Sweep Generator
   Frequency Range: 0–10MHz
6. Colour Monitor TV
7. Plastic Tip Driver
8. VHS–Movie. Alignment Tape (VFJ8125H3F)
9. VHS–Movie. Blank Tape
10. Pattern Generator
11. Vectorscope
12. DC Power Supply

PREPARATION

1. Remove the casing panels.
   (Refer to the disassembly method)
2. Connect the extension cable if necessary.
   VFK0823

HOW TO READ THE ADJUSTMENT PROCEDURES


Connecting Point (Test Point) of Measuring Equipment
Component being Adjusted
Mode of VTR Example: SELF RECORDING Record a Video Signal and Play back the just recorded portion
Measuring Equipment
Specification for Adjustment
Tape for the adjustment Example : VFJ8125H3F use alingment tape VFJ8125H3F
Supply a Video Signal to the VIDEO IN Using Y/C Separator

TP	ADJ.	MODE	INPUT
TP2001 TP2002	VR2002	SELF RECORDING	VIDEO SIGNAL
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	OSCILLO-SCOPE	0.4±0.4msec.	

Note: If ☒ appears in any block, this means it is not used or not important.

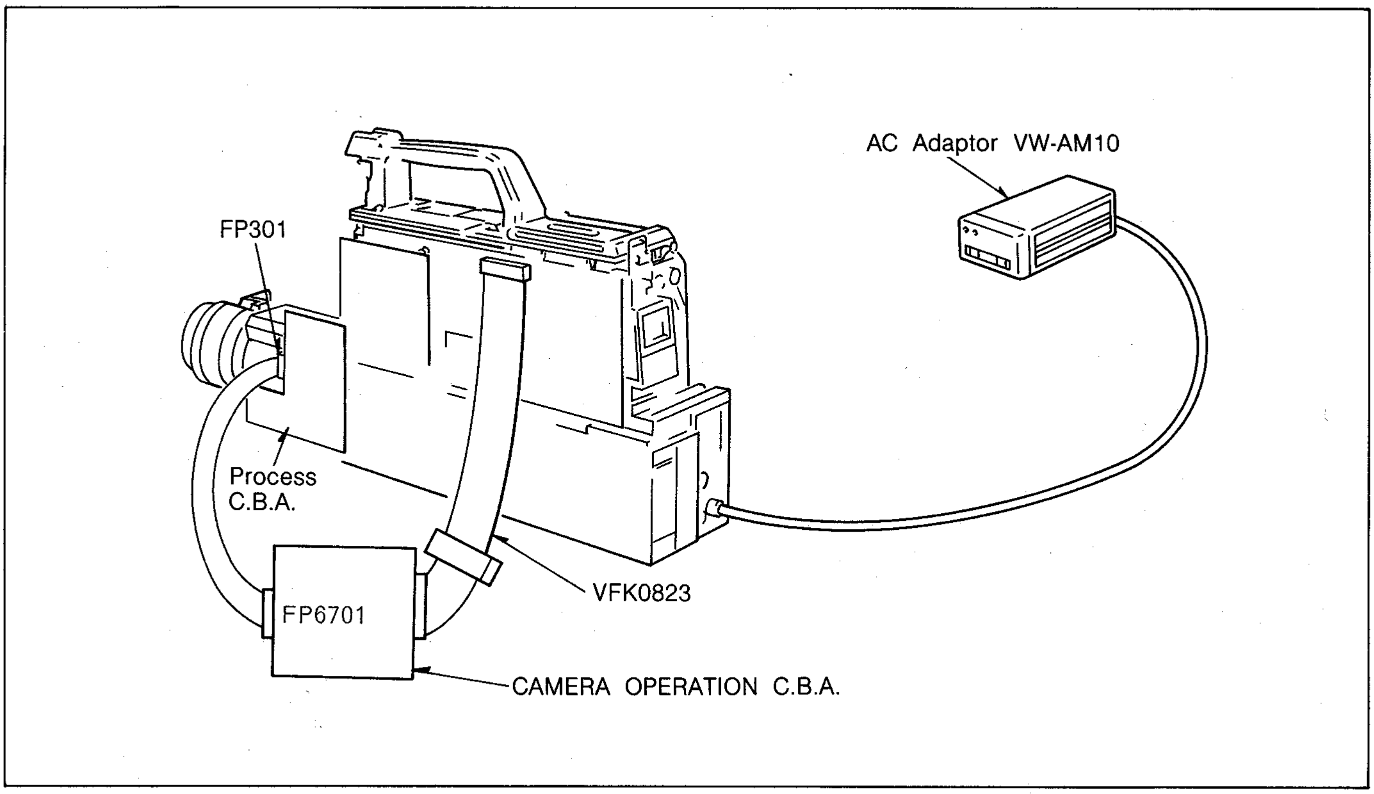


Fig. V1

TRIGGERING THE OSCILLOSCOPE

To trigger the Oscilloscope, the following test point is used.

H. rate : TP (video output)
V. rate : CKJ6 (Head Switch signal)
(B6001(6))

POWER SECTION

1. REG. 5V ADJUSTMENT

Purpose:
To properly calibrate the 5V voltage to 4.87 DC+−0.025V.

Symptom of Misadjustment:
All circuits in the unit will not operate properly.

TP	ADJ.	MODE	INPUT
TL1001 (HOT) TL1006 (GND)	VR1001	S-VHS CAMERA RECORDING (EIS ON)	
TAPE	**M. EQ.**	**SPEC.**	
S-VHS BLANK TAPE	D.V.M.	4.87+−0.025V	

Note:
Sensor, process, and camera operation C.B.A. are connect to the main C.B.A.

(1) Connect the D.V.M. To TL1001(HOT) and TL1006 (GND) Adjust the VR1001 so that D.V.M. is 4.87+−0.025V.

2. CAMERA 3.5V ADJUSTMENT

Purpose:
To properly calibrate the voltage to 3.51V DC +−0.025V.

Symptom of Misadjustment:
All circuits in N Unit will not operate properly.

TP	ADJ.	MODE	INPUT
TL1002 (HOT) TL1006 (GND)	VR1002	S-VHS CAMERA RECORDING (EIS ON)	
TAPE	**M. EQ.**	**SPEC.**	
S-VHS BLANK TAPE	D.V.M.	3.51+−0.025V	

Note:
Sensor, process, and camera operation C.B.A. are connect to the main C.B.A.
Turn the power sw on and then set EIS system to the ON position.

(1) Connect the D.V.M. to the TL1002(HOT) and TL1006(GND) Adjust the VR1002 so that D.V.M. is 3.51+−0.025V.

3. CAMERA 9V REGULATOR

TP	ADJ.	MODE	INPUT
TL1003 (HOT) TL1006 (GND)	VR1003	S-VHS CAMERA RECORDING (EIS ON)	
TAPE	**M. EQ.**	**SPEC.**	
S-VHS BLANK TAPE	D.V.M.	8.70+0.05V −0.05V	

Note:
Eis system must be set to the ON position.

(1) Connect the D.V.M. To TL1003(HOT) and TL1006 (GND) Adjust the VR1003 so that D.V.M. is 8.70+0.05V,−0.05V.

SERVO SECTION

4. PG SHIFTER ADJUSTMENT

Purpose:
Determine the Head Switching point during play−back.

Symptom of Misadjustment:
May cause Head Switching Noise and/or Vertical jitter in the picture.

TP	ADJ.	MODE	INPUT
B6001 ⑥ (CKJ6) VIDEO OUT	VR6201	PLAY	
TAPE	**M. EQ.**	**SPEC.**	
ALIGNMENT TAPE (VFJ8125H3F)	OSCILLO-SCOPE	6.5H±0.5H	

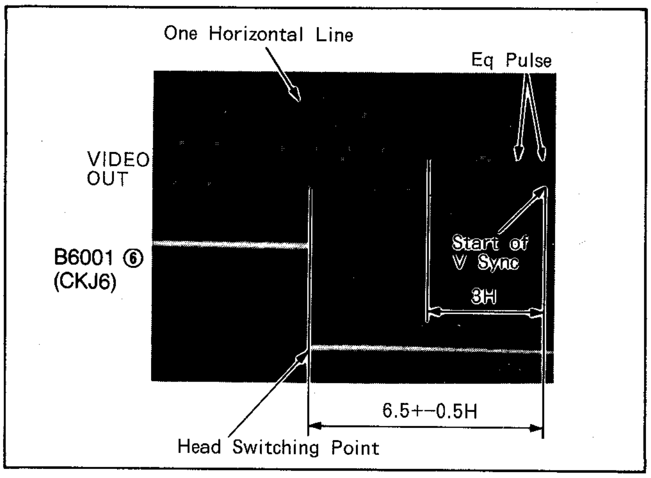


Fig. V2

LUMINANCE & CHROMINANCE SECTION

5. S-VHS MODULATOR LEVEL ADJUSTMENT

TP	ADJ.	MODE	INPUT
TL3003	VR3004	S-VHS STOP	COLOUR BAR B6001 ⑩ (CKJ ⑩)
TAPE	**M. EQ.**	**SPEC.**	
	OSCILLO-SCOPE	0.34+−0.01Vp-p	

1. Connect the jumper wire between TEST MODE PIN 7 and PIN 11.
2. Supply Colour Bar signal to TEST MODE PIN 10.
3. Connect the oscilloscope to TL3003.
4. Adjust the VR3004 so that signal level is 0.34+-0.01Vp-p.

6. RECORDING CURRENT ADJUSTMENT
REC CHROMA LEVEL ADJUSTMENT

Purpose:
Set the optimum Record Chroma Level.

Symptom of Misadjustment:
If the Record Chroma Level is too high, Beats may be seen in the picture. If the Level is too low, Picture will be Black and White.

TP	ADJ.	MODE	INPUT
TL5001 (HOT) TL5002 (GND)	VR8001	VHS REC	DARK PICTURE
TAPE	**M. EQ.**	**SPEC.**	
VHS BLANK TAPE	OSCILLO-SCOPE	14+−2mVp-p	

Note 1:
Cover the Lens with black cap.

Note 2:
Minimize the luminance recording current by turning VR3001 before this adjustment.

1. Connect the oscilloscope to TL5001(HOT) and TL5002(GND).
2. Aim the camera at colour bar.
3. Make recording with SP mode.
4. Eliminate luminance signal by turning off.
5. Adjust the VR8001 so that chroma level is 14+-2mVp-p.

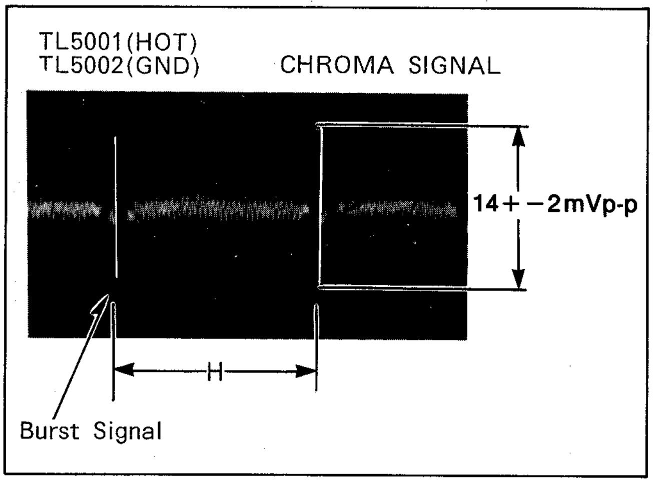


Fig. V3

7. LUMINANCE RECORDING CURRENT ADJUSTMENT

Purpose:
Set the optimum Recording Luminance Level.

Symptom of Misadjustment:
If the Record Luminance Level is too high, video may overload.
If the Level is too low, the S/N Ratio deteriorates.

TP	ADJ.	MODE	INPUT
TL5001 (HOT) TL5002 (GND)	VR3001	VHS REC	DARK PICTURE
TAPE	**M. EQ.**	**SPEC.**	
VHS BLANK TAPE	OSCILLO-SCOPE	100+−5mVp-p	

Note:
Cover the Lens with black cap.

1. Connect the oscilloscope to TL5001(HOT) and TL5002(GND).
2. Aim the camera at colour bar.
3. Make recording with SP mode.
4. Adjust the VR3001 so that luminance level is 100+-5mVp-p.

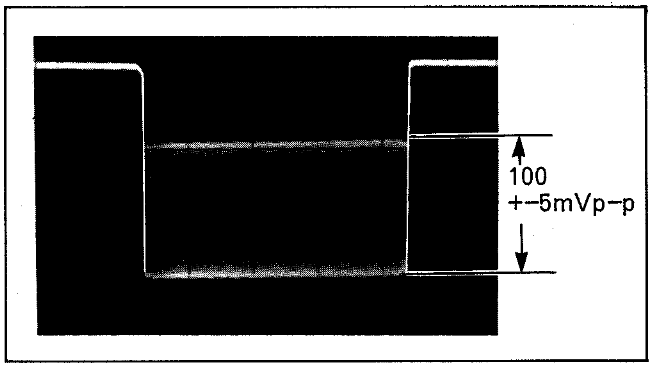


Fig. V4

8. YNR ADJUSTMENT

Purpose:
Improve the overall S/N Ratio especially in the Low Frequency component.

Symptom of Misadjustment:
The S/N Ratio is low.

TP	ADJ.	MODE	CHART
TL3004	VR3005	PLAY	COLOUR BAR
TAPE	**M. EQ.**	**SPEC.**	
ALIGNMENT TAPE VFJ8125H3F	OSCILLO-SCOPE	SIGNAL IS MINIMIZED (LESS THAN 50mV)	

1. Play Back the Alignment tape.
2. Connect the Video output to oscilloscope.
3. Adjust VR3005 so that signal is minimized.

9. S−VHS VIDEO PLAYBACK LEVEL ADJUSTMENT

TP	ADJ.	MODE	INPUT
VIDEO OUT	VR3006	S−VHS SELF RECORDING	COLOUR BAR B6001 ⑩ (CKJ ⑩)
TAPE	**M. EQ.**	**SPEC.**	
S−VHS BLACK TAPE	OSCILLO−SCOPE	A: 1.0+−0.1Vp−p	

1. Terminate the Video out by 75 ohm.
2. Connect the jumper wire between Test Mode Pin 14 and Pin 16.
3. Supply Colour Bar signal to Test Mode Pin 10.
4. Record it for 10 min with S−VHS−Movie.
5. Connect the oscilloscope to Video out.
6. Playback the recorded signal.
7. Adjust VR3007 untill signal level is A=1.0+−0.1Vp−p.

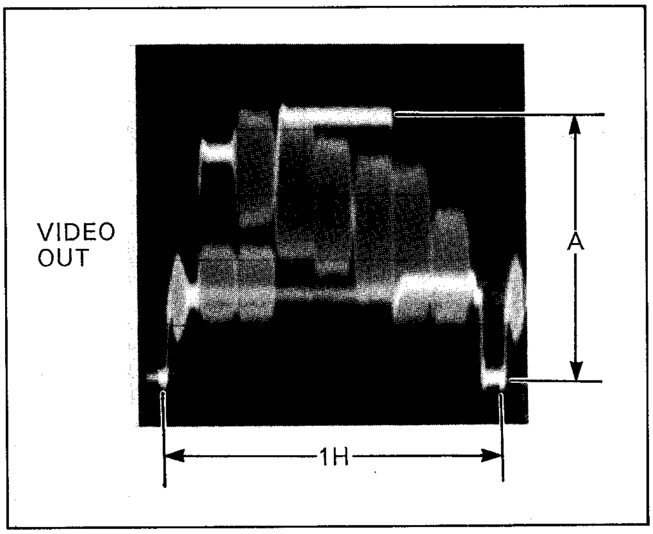
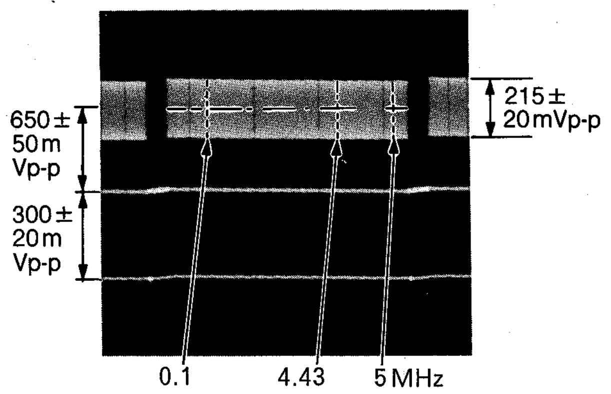


Fig. V5

10. COS EQ ADJUSTMENT

TP	ADJ.	MODE	INPUT
S-VHS LUMI OUT	VR5001	S-VHS SELF RECORDING/ PB	VIDEO SWEEP SIGNAL B6001 ⑩ (CKJ ⑩)
TAPE	**M. EQ.**	**SPEC.**	
S-VHS BLANK TAPE	VIDEO SWEEP/ OSCILLO-SCOPE	A= −6±1dB (50%)	

1. Set the sweep generator output as shown below.



CONDITIONS : 1. BURST SIGNAL OFF
2. 75ohm TERMINATED

Fig. V6

2. Connect a jumper between B6001(7)(CKJ(7)) B6001(11)(CKJ(11)).
3. Supply sweep signal to B6001(10)(CKJ(10)).
4. Record the signal for a about ten minutes.
5. Playback the recorded signal.
6. Adjust VR5001 so that level at 4MHz is within spec. as shown in Fig.V12.

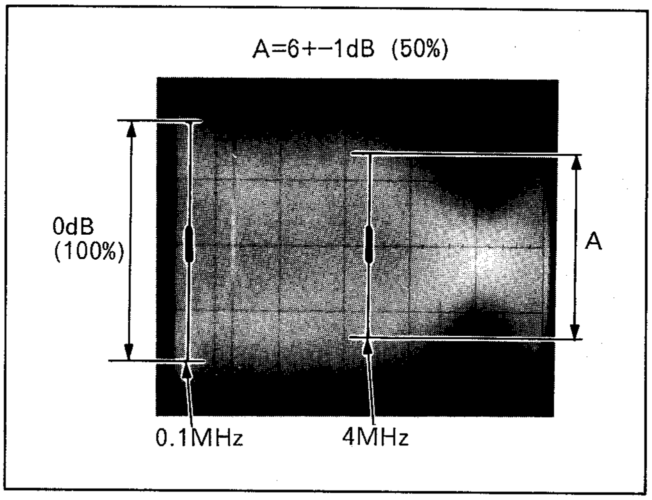


Fig. V7

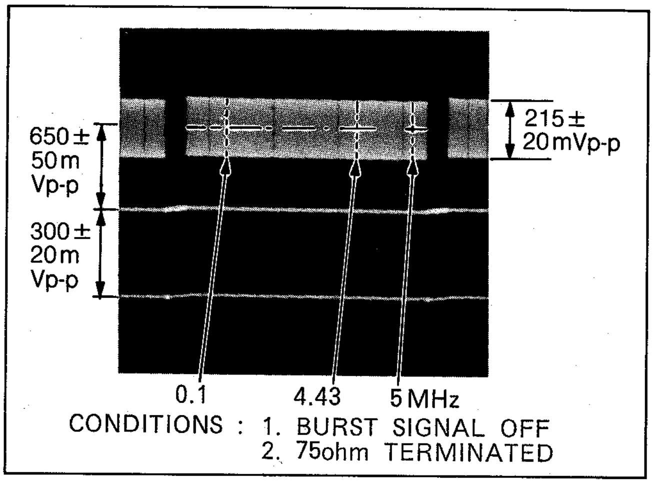
11. HEAD AMP FREQUENCY RESPONSE ADJUSTMENT

Purpose:
To improve Video Frequency Response Level.

Symptom of Misadjustment:
Video Frequency Response deteriorates.
Picture is noisy.

TP	ADJ.	MODE	INPUT
VIDEO OUT	VR3008	VHS SELF RECORDING/ PB	VIDEO SWEEP SIGNAL B6001 ⑩ (CKJ ⑩)
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	VIDEO SWEEP/ OSCILLO-SCOPE	A=0dB+–1dB (100%)	

1. Set the sweep generator output as shown below.



CONDITIONS : 1. BURST SIGNAL OFF
2. 75ohm TERMINATED

Fig. V8

2. Connect a jumper between B6001(7)(CKJ(7)) and B6001(11)(CKJ(11)).
3. Supply sweep signal to B6001(10)(CKJ(10)).
4. Record the signal for ten minutes.
5. Play back the recorded signal.
6. Adjust VR3008 so that the level is within the 2MHz spec. as shown below.

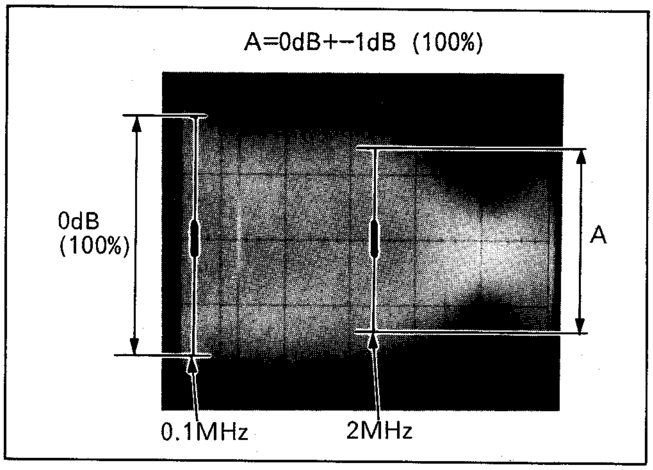


Fig. V9

AUDIO SECTION

12. AUDIO BIAS CURRENT ADJUSTMENT

TP	ADJ.	MODE	INPUT
TL4001 (HOT) TL4002 (GND)	VR4002	REC	disconnect P4001
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	oscilloscope (V.T.V.M.)	8.5±0.3mVp-p (3±0.1mVrms)	

Note
Connector (P4001) must be disconnected.
Set the normal audio mode.

13. AUDIO PLAYBACK LEVEL ADJUSTMENT

TP	ADJ.	MODE	INPUT
LINE OUT	VR4001	VHS REC/PB	1kHz Audio 8.9±0.5mVp-p (−50dBV ±0.5dB) CKR1 (P4001 ③) IN CKR2 (P4001 ②) GND
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	SIGNAL GENERATOR/ OSCILLO-SCOPE (V.T.V.M)	1.1+−0.1Vp−p (−8+−0.5dB)	

Note:
Audio bias current adjustment must be completed before the adjustment.

1. Set the normal audio mode.
2. Supply the audio signal (1kHz/−50dBV+−0.5dB sine−wave) to audio circuit through the test point. (CKR1, CKR2)
3. Audio VR4001 so that the level is PB Level 1.1+−0.1Vp−p. (−8dB+−0.5dB)

Hi-Fi AUDIO SECTION

14. Hi−Fi AUDIO RECORDING CURRENT ADJUSTMENT

TP	ADJ.	MODE	INPUT
TL5003 (HOT) TL5001 (GND)	VR4502	S-VHS RECORDING	
TAPE	**M. EQ.**	**SPEC.**	
S-VHS BLANK TAPE	OSCILLO-SCOPE	220+−5mVp-p	

1. Connector (P4001) must be disconnected.
2. Connect the OSCILLOSCOPE to TL5003(HOT) and TL5001(GND).
3. Adjust VR4502 so that the Audio recording current is 220+−5mVp−p as shown below.

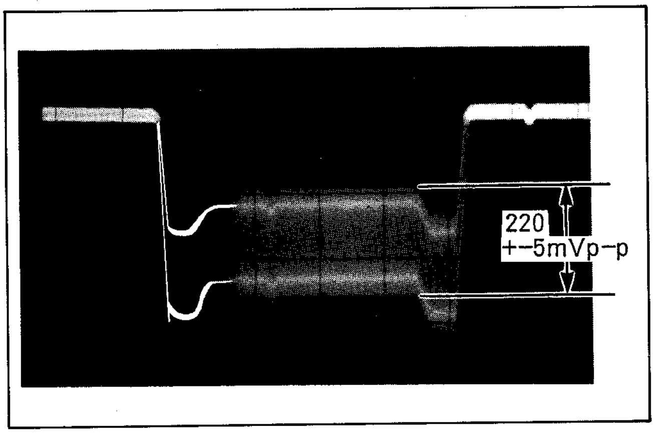


Fig. V10

15. AUDIO MUTING ADJUSTMENT

TP	ADJ.	MODE	INPUT
B5001-3	VR4501	PLAY	
TAPE	**M. EQ.**	**SPEC.**	
VFJ8125H3F	OSCILLO-SCOPE		

Note:
Tape Interchangeability Adjustment must be completed before this adjustment.

1. Playback the Alignment tape.
2. Push the tracking Button untill signal level at B5001−3 becomes maximum.
3. Adjust VR4501 to anti−clockwise untill sound mode change to normal from Hi−Fi mode, and return it to clockwise untill sound mode change to Hi−Fi from normal mode.

VITC SECTION

16. VITC SIGNAL LEVEL ADJUSTMENT

TP	ADJ.	MODE	INPUT
VIDEO OUT	VR3802	VHS REC PAUSE	GRAY SCALE CHART
TAPE	**M. EQ.**	**SPEC.**	
	VITC GENERATOR/ OSCILLO-SCOPE	V/S 1.8+−0.07 (540+−20mVp-p)	

1. Connect the VITC generator to 10 pin multiconnector.
2. Aim the Camera at Gray Scale Chart.
3. Set the unit to VHS−Movie. Mode and set to Rec Pause mode.
4. Adjust the VR3802 so that ratio of V and S is 1.8+−0.07 as shown below.

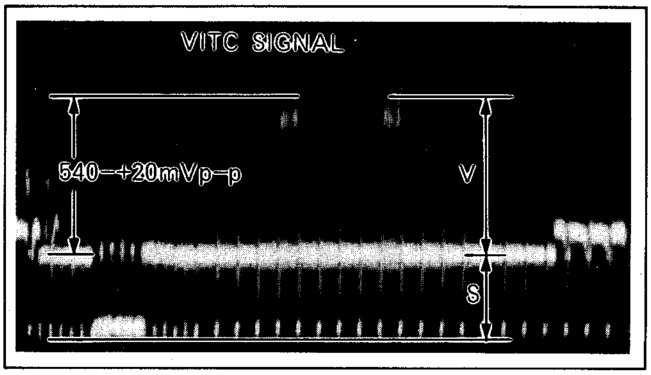
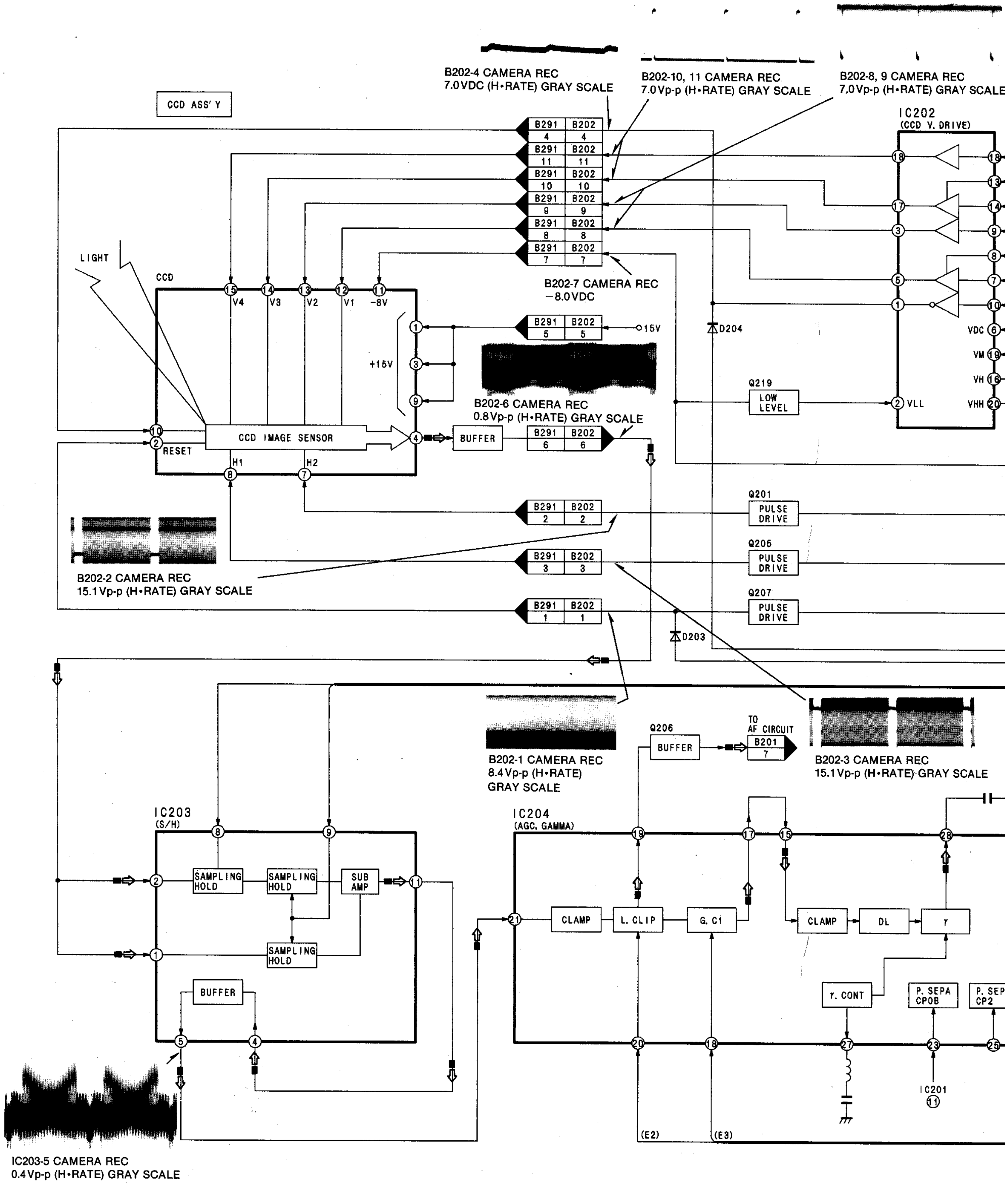


Fig. V11

SECTION 3
BLOCK DIAGRAM & SCHEMATIC DIAGRAMS
3-1. CCD DRIVE BLOCK DIAGRAM



B202-4 CAMERA REC
7.0VDC (H•RATE) GRAY SCALE

B202-10, 11 CAMERA REC
7.0Vp-p (H•RATE) GRAY SCALE

B202-8, 9 CAMERA REC
7.0Vp-p (H•RATE) GRAY SCALE

B202-7 CAMERA REC
−8.0VDC

B202-6 CAMERA REC
0.8Vp-p (H•RATE) GRAY SCALE

B202-2 CAMERA REC
15.1Vp-p (H•RATE) GRAY SCALE

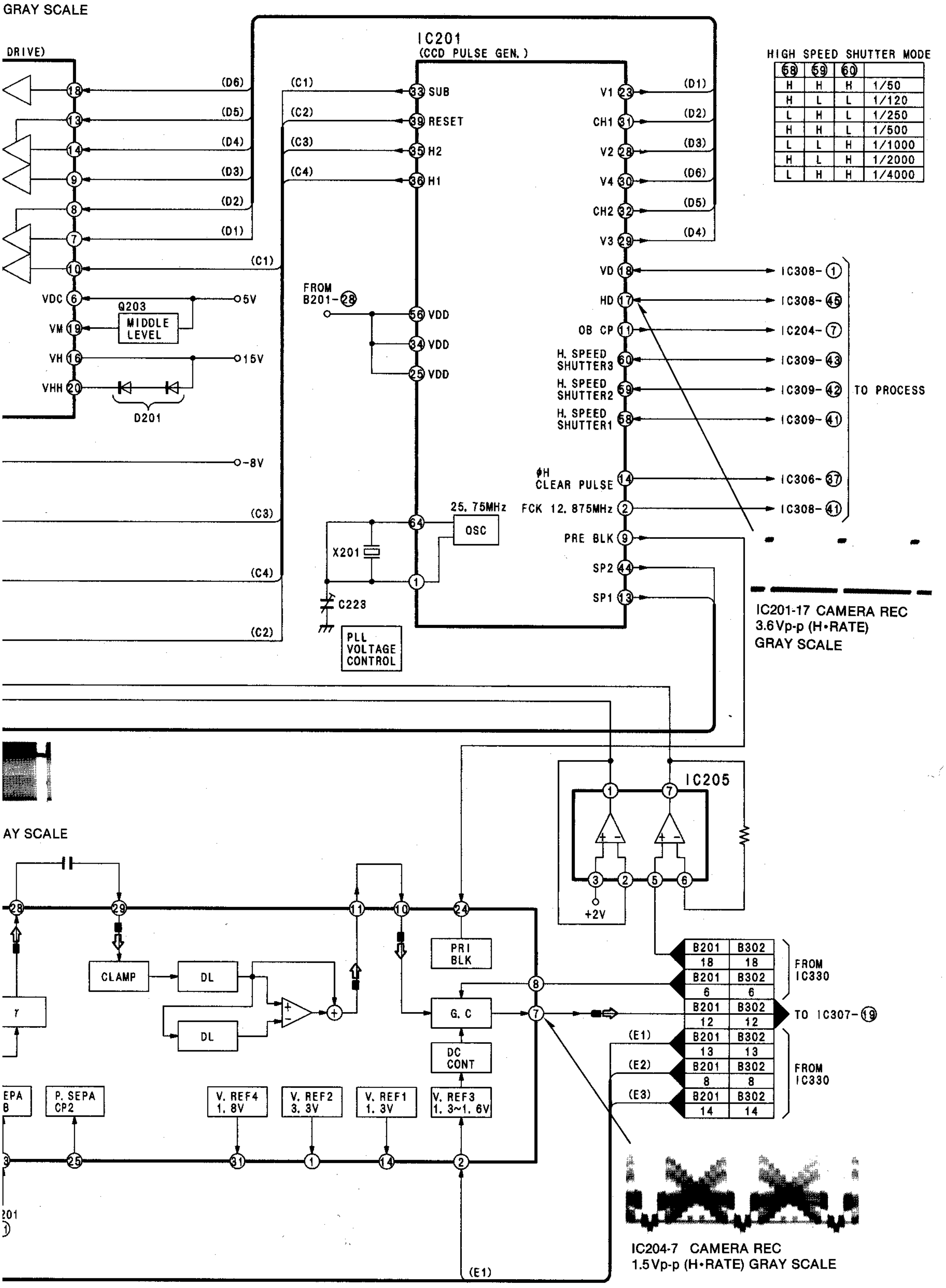
B202-1 CAMERA REC
8.4Vp-p (H•RATE)
GRAY SCALE

B202-3 CAMERA REC
15.1Vp-p (H•RATE) GRAY SCALE

IC203-5 CAMERA REC
0.4Vp-p (H•RATE) GRAY SCALE

PRE VIDEO SIGNAL

\ REC
GRAY SCALE



HIGH SPEED SHUTTER MODE

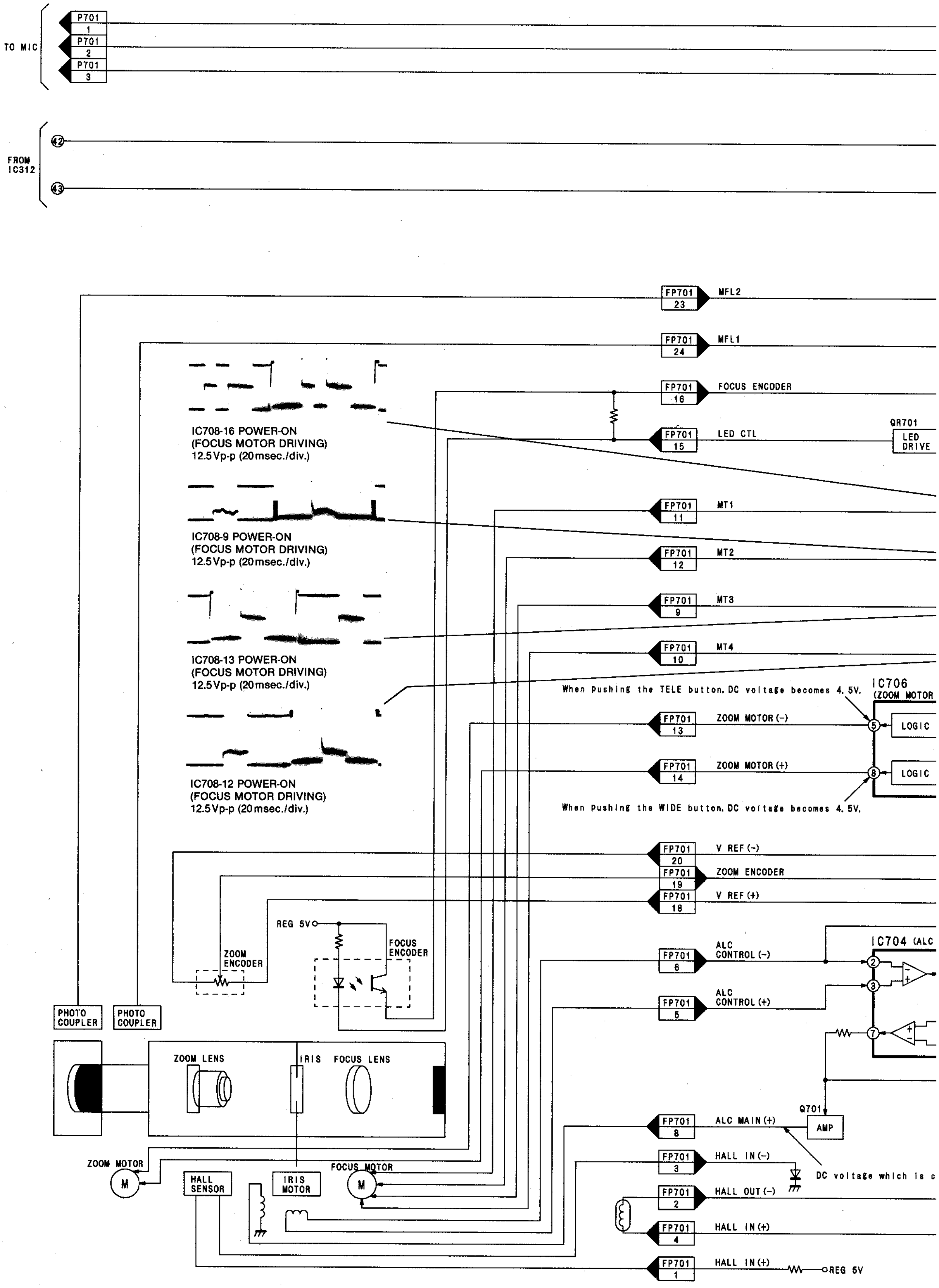
㊳	㊴	㊵	
H	H	H	1/50
H	L	L	1/120
L	H	L	1/250
H	H	L	1/500
L	L	H	1/1000
H	L	H	1/2000
L	H	H	1/4000

IC201-17 CAMERA REC
3.6Vp-p (H•RATE)
GRAY SCALE

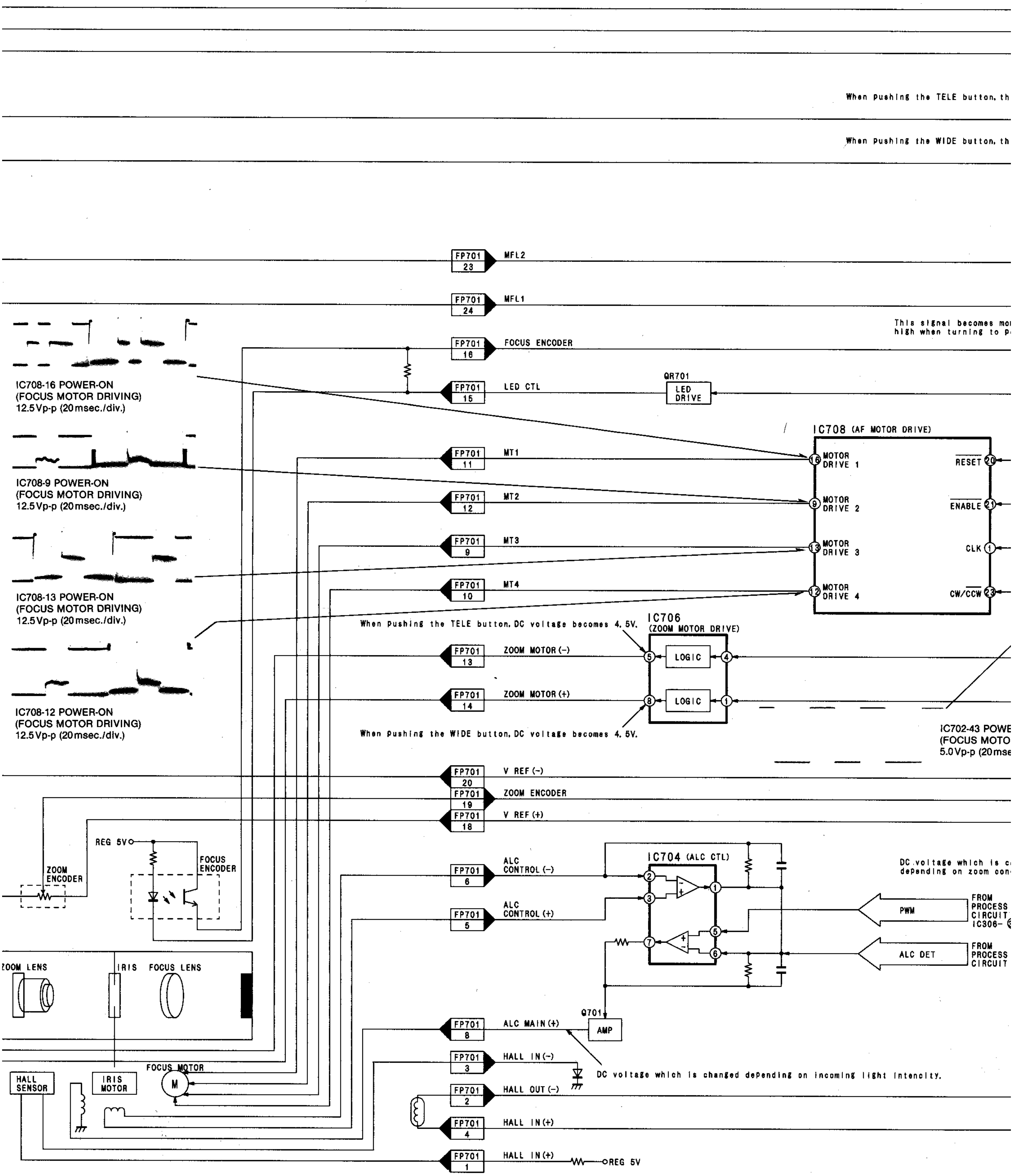
AY SCALE

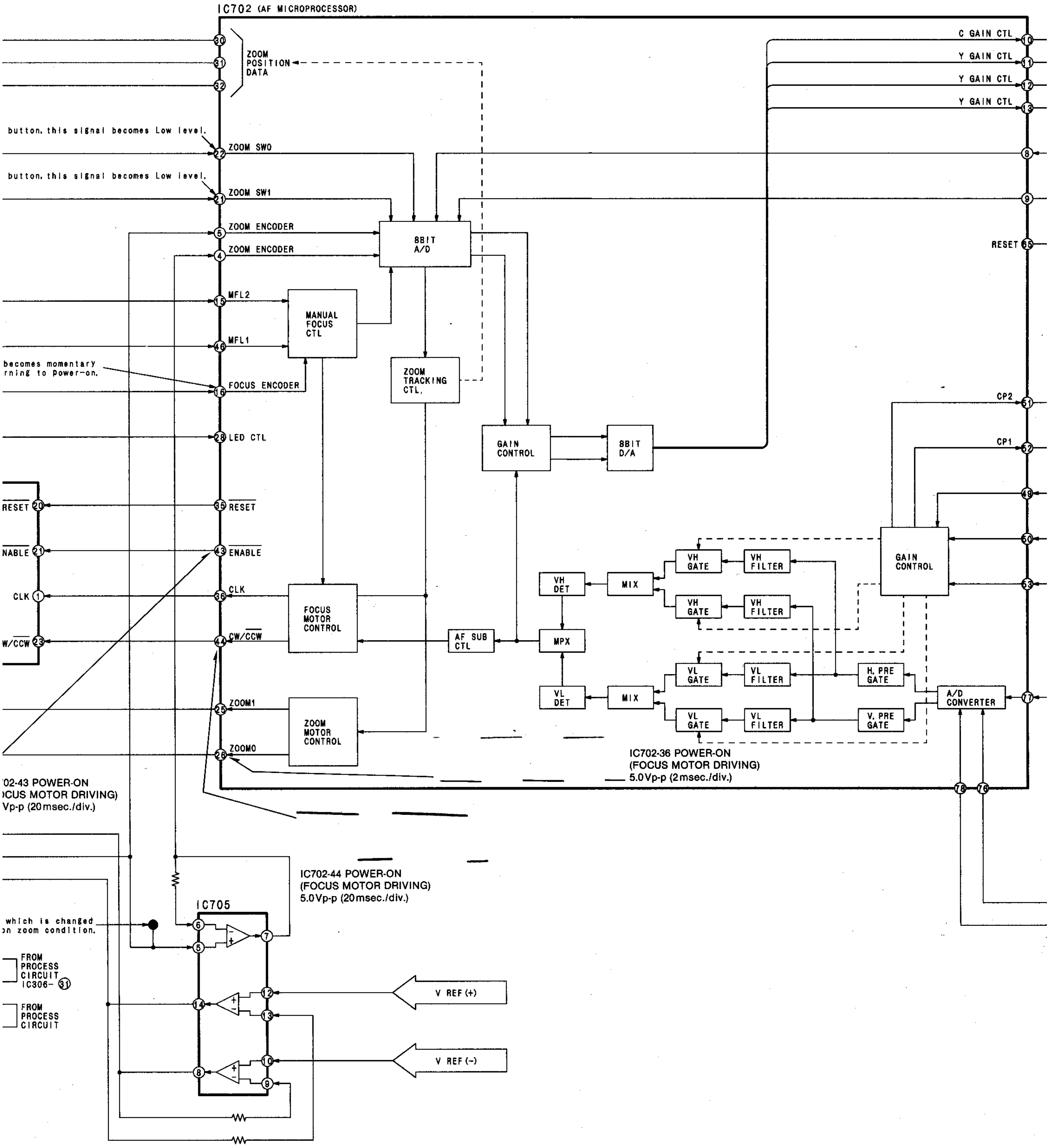
IC204-7 CAMERA REC
1.5Vp-p (H•RATE) GRAY SCALE

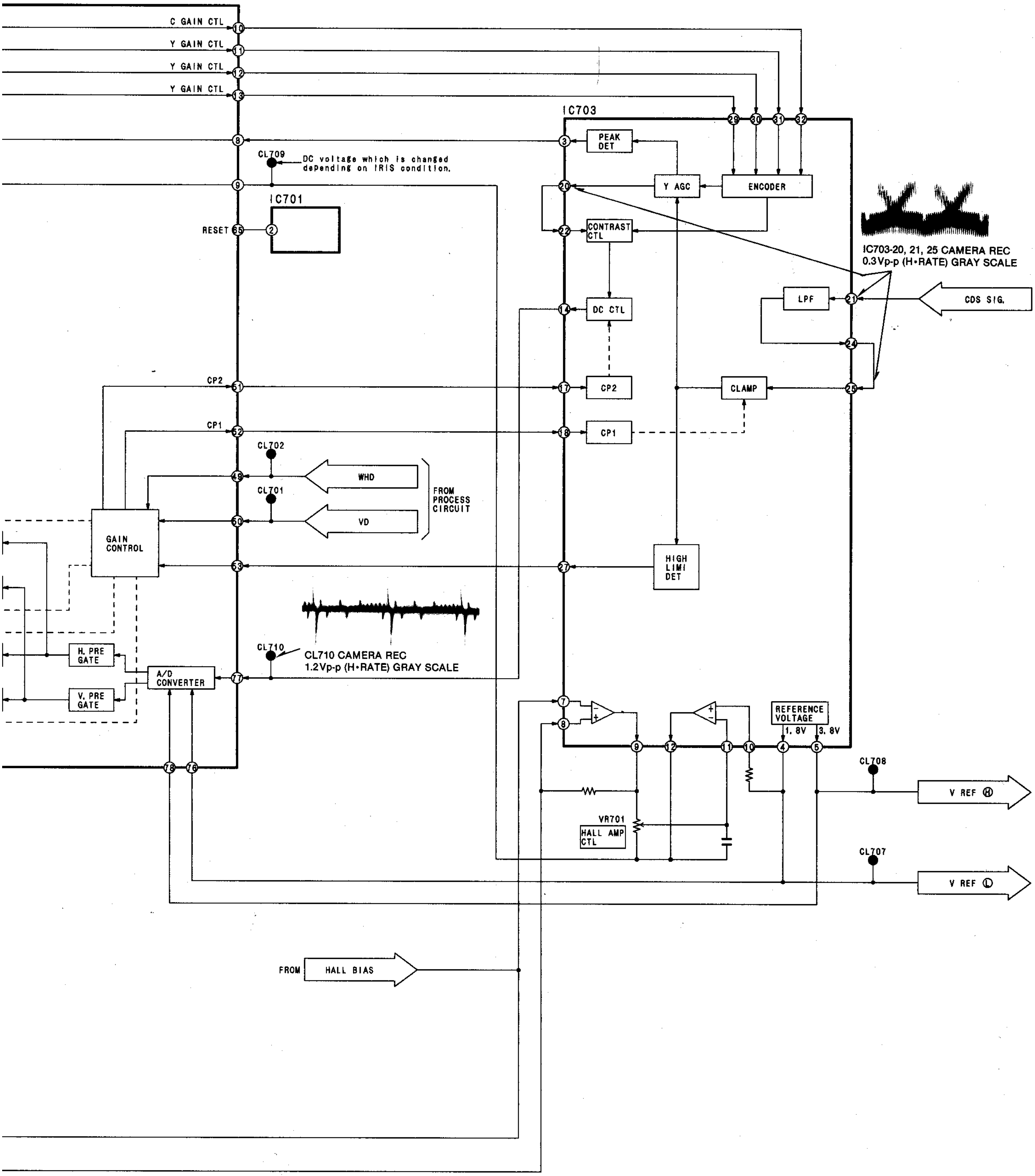
3-2. AUTO FOCUS BLOCK DIAGRAM



FOCUS BLOCK DIAGRAM




IC702 (AF MICROPROCESSOR)
ZOOM POSITION DATA
button, this signal becomes Low level.
ZOOM SW0
button, this signal becomes Low level.
ZOOM SW1
ZOOM ENCODER
ZOOM ENCODER
MFL2
MFL1
becomes momentary
rning to power-on.
FOCUS ENCODER
LED CTL
RESET
RESET
ENABLE
NABLE
CLK
CLK
CW/CCW
W/CCW
ZOOM1
ZOOM0
8BIT A/D
MANUAL FOCUS CTL
ZOOM TRACKING CTL.
GAIN CONTROL
8BIT D/A
FOCUS MOTOR CONTROL
ZOOM MOTOR CONTROL
AF SUB CTL
VH DET
MIX
MPX
VL DET
MIX
VH GATE
VH GATE
VH FILTER
VH FILTER
VL GATE
VL GATE
VL FILTER
VL FILTER
H. PRE GATE
V. PRE GATE
A/D CONVERTER
GAIN CONTROL
C GAIN CTL
Y GAIN CTL
Y GAIN CTL
Y GAIN CTL
RESET
CP2
CP1
IC702-36 POWER-ON
(FOCUS MOTOR DRIVING)
5.0Vp-p (2msec./div.)
'02-43 POWER-ON
)CUS MOTOR DRIVING)
Vp-p (20msec./div.)
IC702-44 POWER-ON
(FOCUS MOTOR DRIVING)
5.0Vp-p (20msec./div.)
IC705
which is changed
on zoom condition.
FROM PROCESS CIRCUIT IC306-31
FROM PROCESS CIRCUIT
V REF (+)
V REF (-)

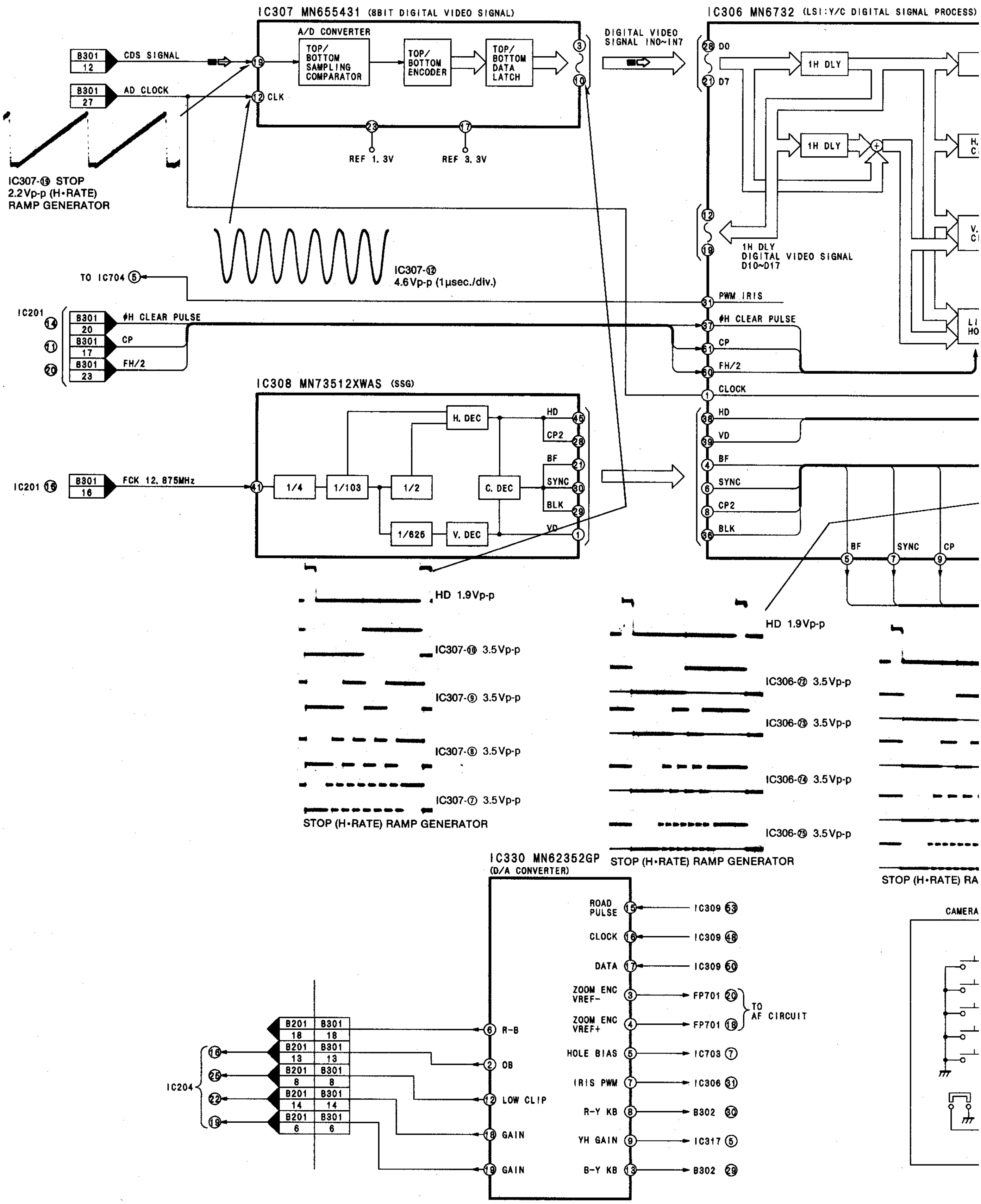


DC voltage which is changed depending on IRIS condition.

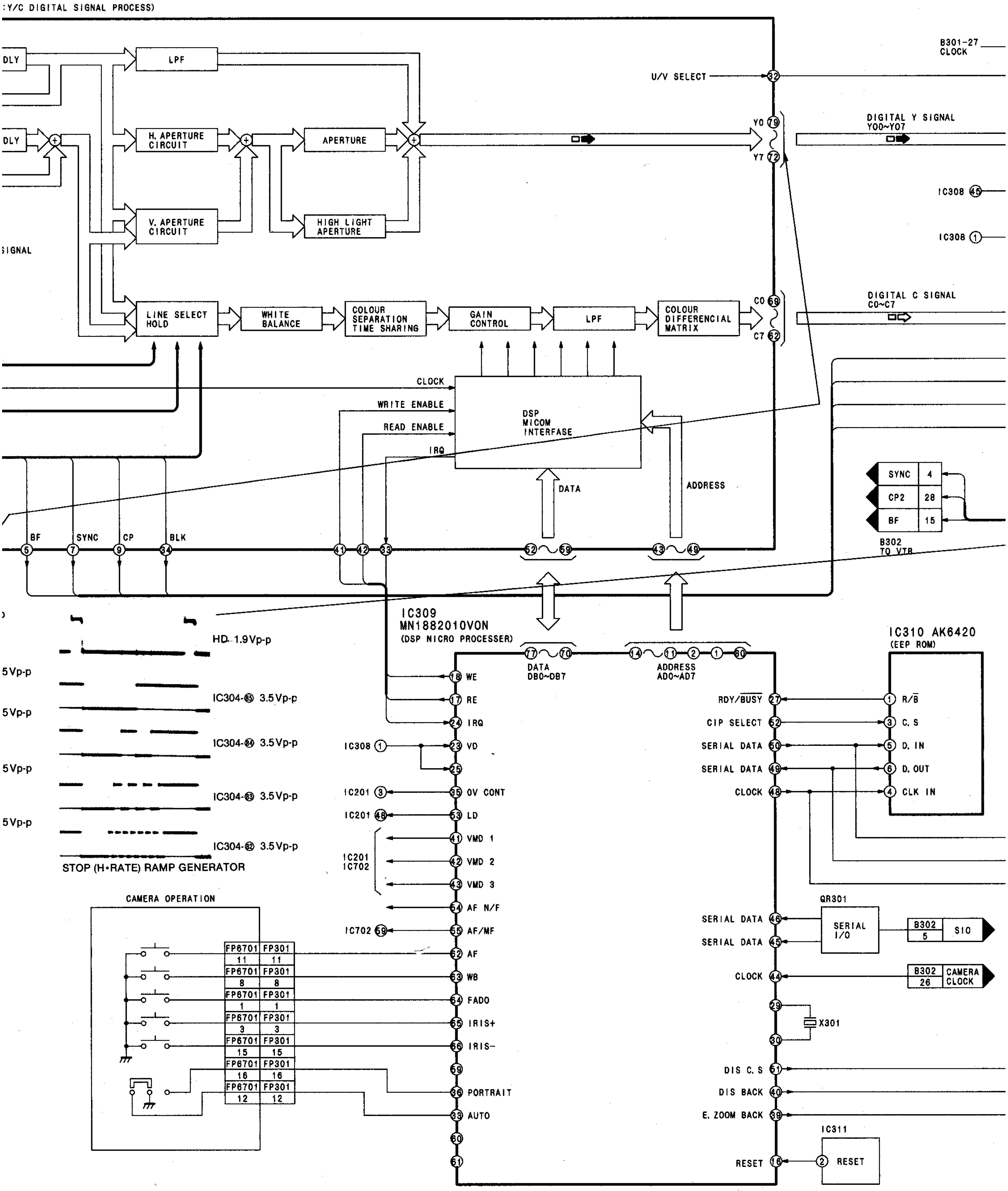
IC703-20, 21, 25 CAMERA REC
0.3Vp-p (H•RATE) GRAY SCALE

CL710 CAMERA REC
1.2Vp-p (H•RATE) GRAY SCALE

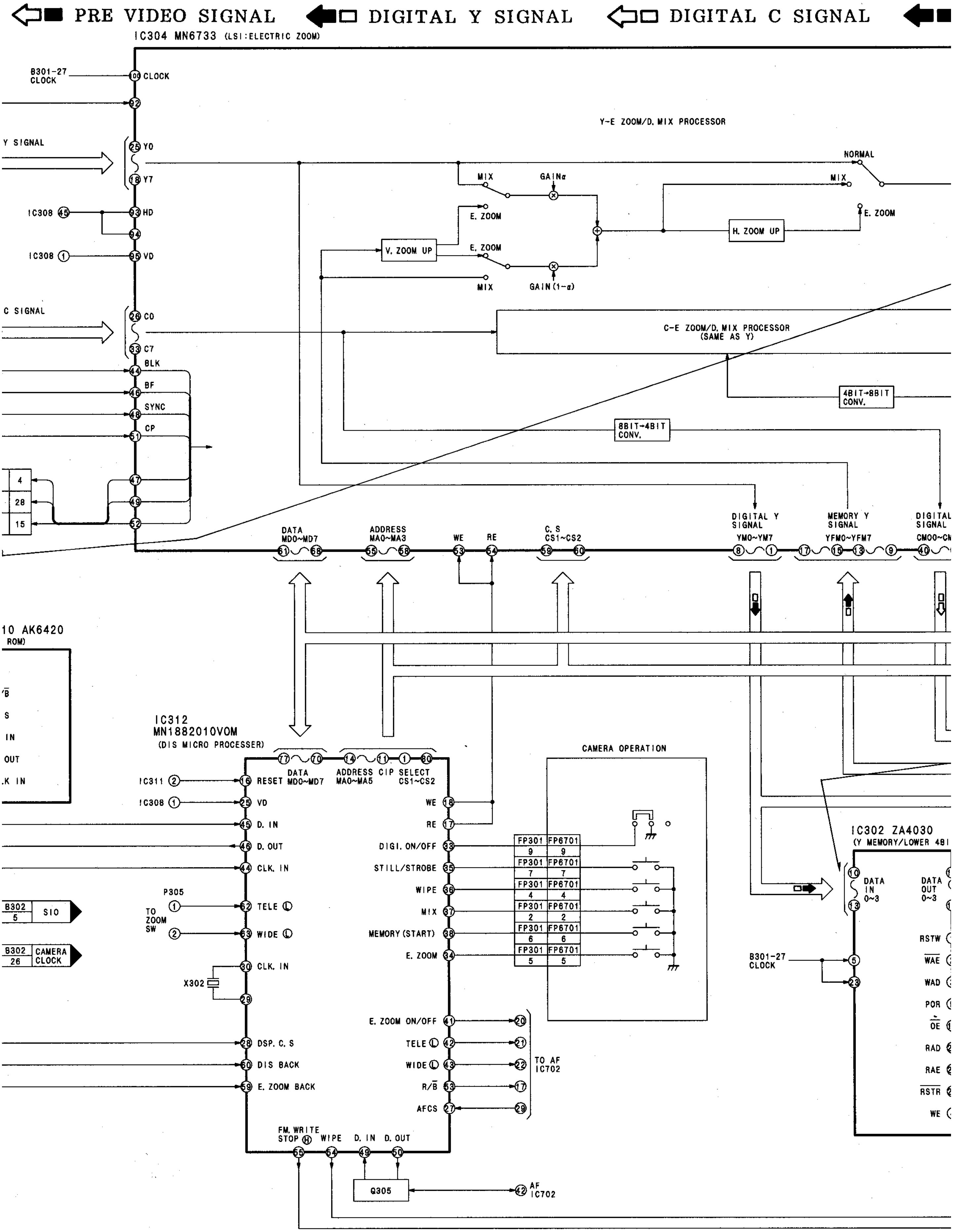
3-3. PROCESS BLOCK DIAGRAM



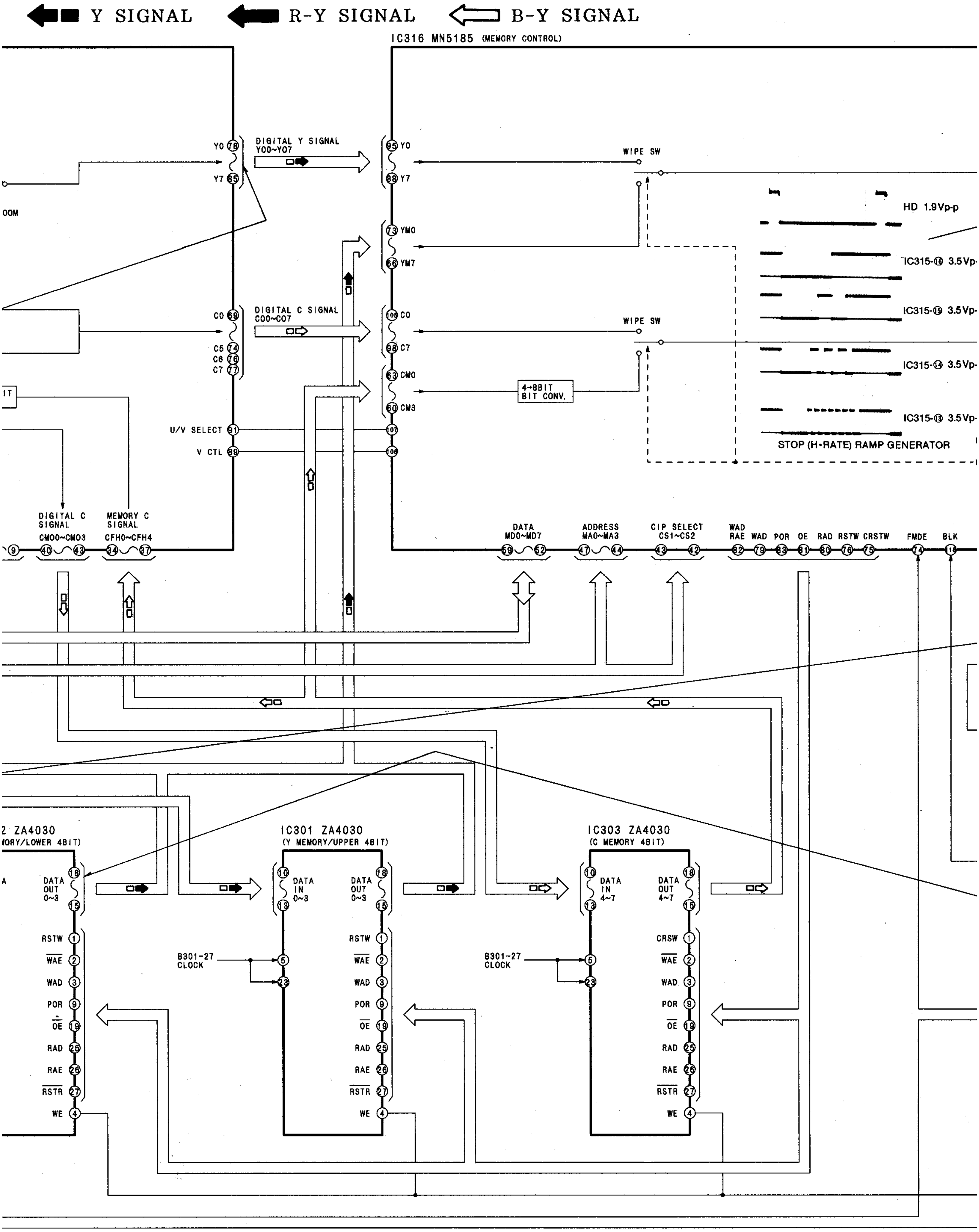
PI

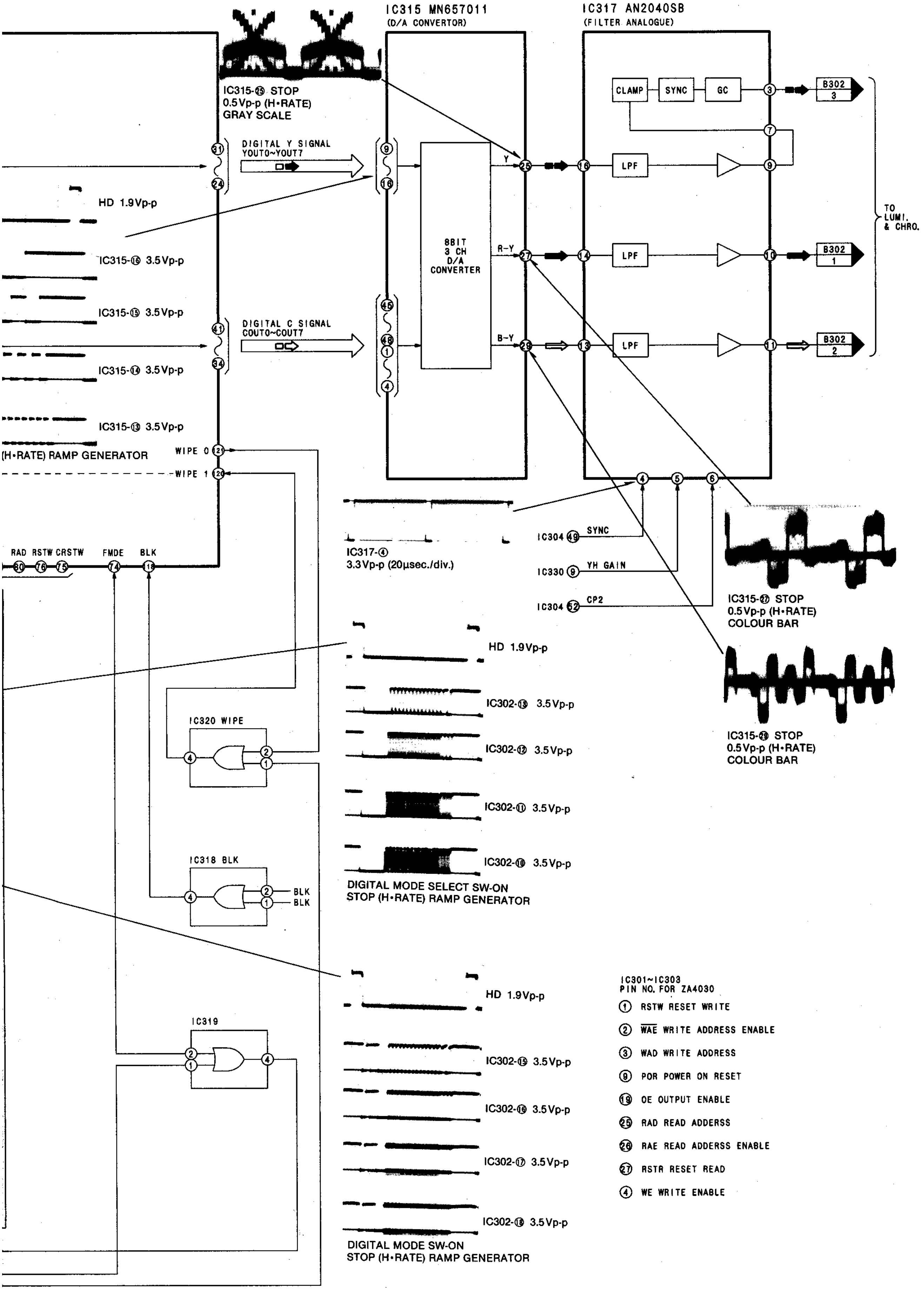


:Y/C DIGITAL SIGNAL PROCESS)
DLY
LPF
DLY
H. APERTURE CIRCUIT
APERTURE
V. APERTURE CIRCUIT
HIGH LIGHT APERTURE
;IGNAL
LINE SELECT HOLD
WHITE BALANCE
COLOUR SEPARATION TIME SHARING
GAIN CONTROL
LPF
COLOUR DIFFERENCIAL MATRIX
U/V SELECT
32
Y0 79
Y7 72
C0 69
C7 62
B301-27 CLOCK
DIGITAL Y SIGNAL Y00~Y07
IC308 45
IC308 1
DIGITAL C SIGNAL C0~C7
CLOCK
WRITE ENABLE
READ ENABLE
IRQ
DSP MICOM INTERFASE
DATA
ADDRESS
SYNC 4
CP2 28
BF 15
B302 TO VTR
BF
SYNC
CP
BLK
5
7
9
34
41
42
33
52
59
43
49
IC309 MN1882010VON
(DSP NICRO PROCESSER)
HD 1.9Vp-p
5Vp-p
IC304-85 3.5Vp-p
5Vp-p
IC304-84 3.5Vp-p
5Vp-p
IC304-83 3.5Vp-p
5Vp-p
IC304-82 3.5Vp-p
STOP (H•RATE) RAMP GENERATOR
77
70
DATA DB0~DB7
14
11
2
1
80
ADDRESS AD0~AD7
18 WE
17 RE
24 IRQ
IC308 1
23 VD
25
IC201 3
35 OV CONT
IC201 48
53 LD
41 VMD 1
42 VMD 2
IC201 IC702
43 VMD 3
54 AF N/F
IC702 69
55 AF/MF
62 AF
63 WB
64 FADO
65 IRIS+
66 IRIS-
59
36 PORTRAIT
33 AUTO
60
61
RDY/BUSY 27
CIP SELECT 52
SERIAL DATA 50
SERIAL DATA 49
CLOCK 48
IC310 AK6420
(EEP ROM)
1 R/B
3 C.S
5 D. IN
6 D. OUT
4 CLK IN
QR301
SERIAL I/O
SERIAL DATA 46
SERIAL DATA 45
B302 5
SIO
CLOCK 44
B302 26
CAMERA CLOCK
29
X301
30
DIS C.S 51
DIS BACK 40
E. ZOOM BACK 39
IC311
RESET 16
2 RESET
CAMERA OPERATION
FP6701 FP301
11 11
8 8
1 1
3 3
15 15
16 16
12 12



FP301	FP6701
9	9
7	7
4	4
2	2
6	6
5	5

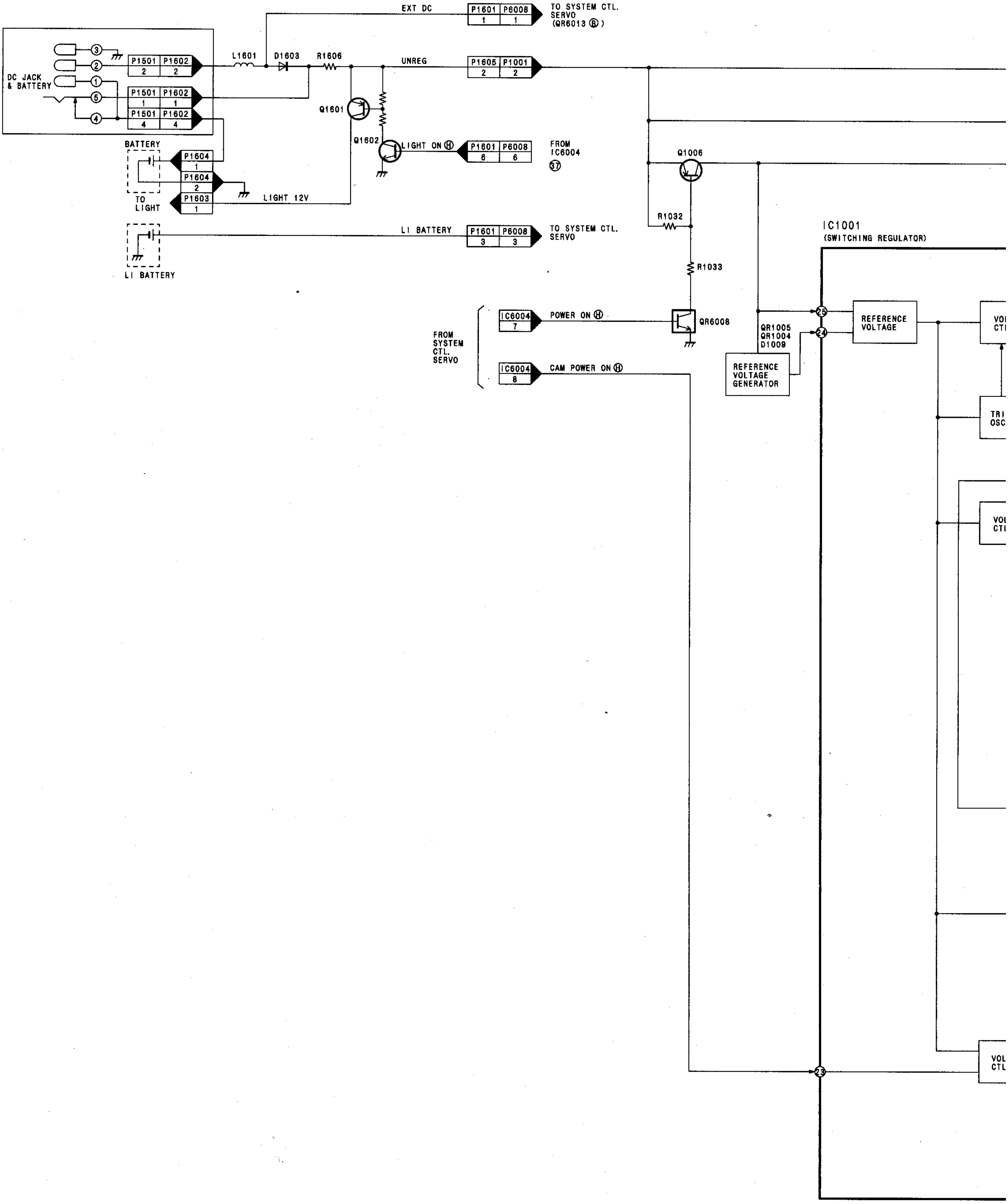

Y SIGNAL
R-Y SIGNAL
B-Y SIGNAL
IC316 MN5185 (MEMORY CONTROL)
Y0 78
Y7 85
DIGITAL Y SIGNAL
Y00~Y07
95 Y0
88 Y7
WIPE SW
OOM
73 YM0
66 YM7
HD 1.9Vp-p
IC315-⑯ 3.5Vp-
IC315-⑮ 3.5Vp-
IC315-⑭ 3.5Vp-
IC315-⑬ 3.5Vp-
STOP (H·RATE) RAMP GENERATOR
C0 69
C5 74
C6 76
C7 77
DIGITAL C SIGNAL
C00~C07
105 C0
98 C7
WIPE SW
63 CM0
60 CM3
4→8BIT
BIT CONV.
IT
U/V SELECT 91
V CTL 89
107
106
DIGITAL C SIGNAL
CM00~CM03
9
40
43
MEMORY C SIGNAL
CFH0~CFH4
34
37
DATA
MD0~MD7
59
52
ADDRESS
MA0~MA3
47
44
CIP SELECT
CS1~CS2
43
42
WAD
RAE 82
WAD 79
POR 83
OE 81
RAD 80
RSTW 76
CRSTW 75
FMDE 74
BLK 16
2 ZA4030
ORY/LOWER 4BIT)
A
DATA OUT 0~3
18
15
RSTW 1
WAE 2
WAD 3
POR 9
OE 19
RAD 25
RAE 26
RSTR 27
WE 4
IC301 ZA4030
(Y MEMORY/UPPER 4BIT)
DATA IN 0~3
10
13
DATA OUT 0~3
18
15
B301-27
CLOCK
5
23
RSTW 1
WAE 2
WAD 3
POR 9
OE 19
RAD 25
RAE 26
RSTR 27
WE 4
IC303 ZA4030
(C MEMORY 4BIT)
DATA IN 4~7
10
13
DATA OUT 4~7
18
15
B301-27
CLOCK
5
23
CRSW 1
WAE 2
WAD 3
POR 9
OE 19
RAD 25
RAE 26
RSTR 27
WE 4

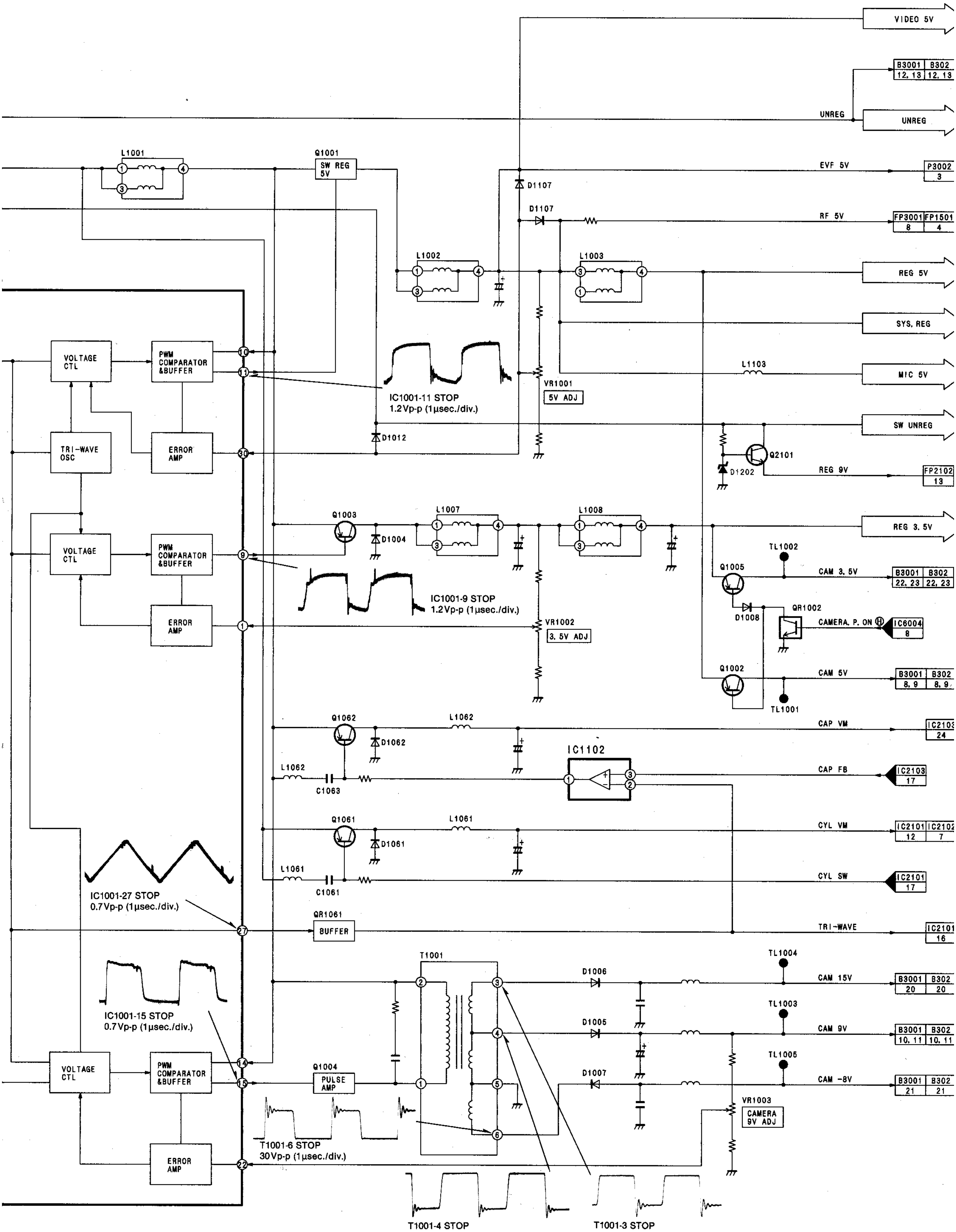


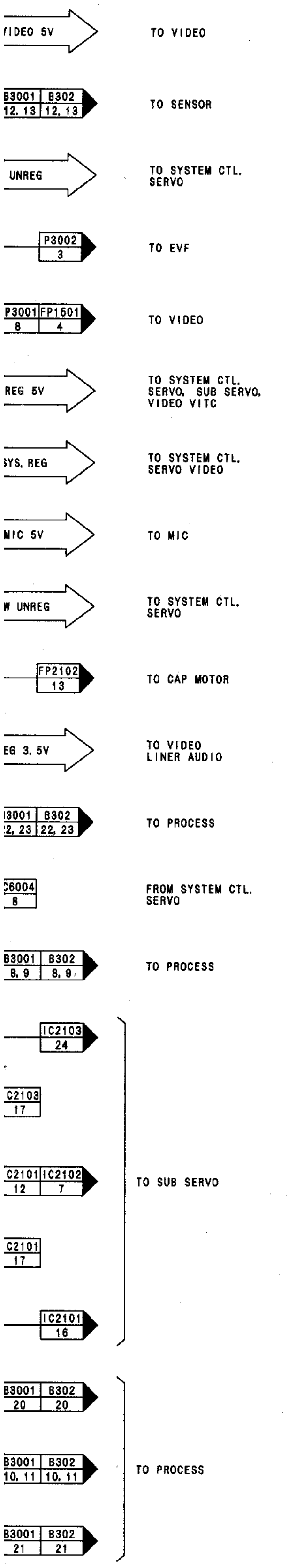
IC301~IC303
PIN NO. FOR ZA4030

① RSTW RESET WRITE
② WAE WRITE ADDRESS ENABLE
③ WAD WRITE ADDRESS
⑨ POR POWER ON RESET
⑲ OE OUTPUT ENABLE
㉕ RAD READ ADDERSS
㉖ RAE READ ADDERSS ENABLE
㉗ RSTR RESET READ
④ WE WRITE ENABLE

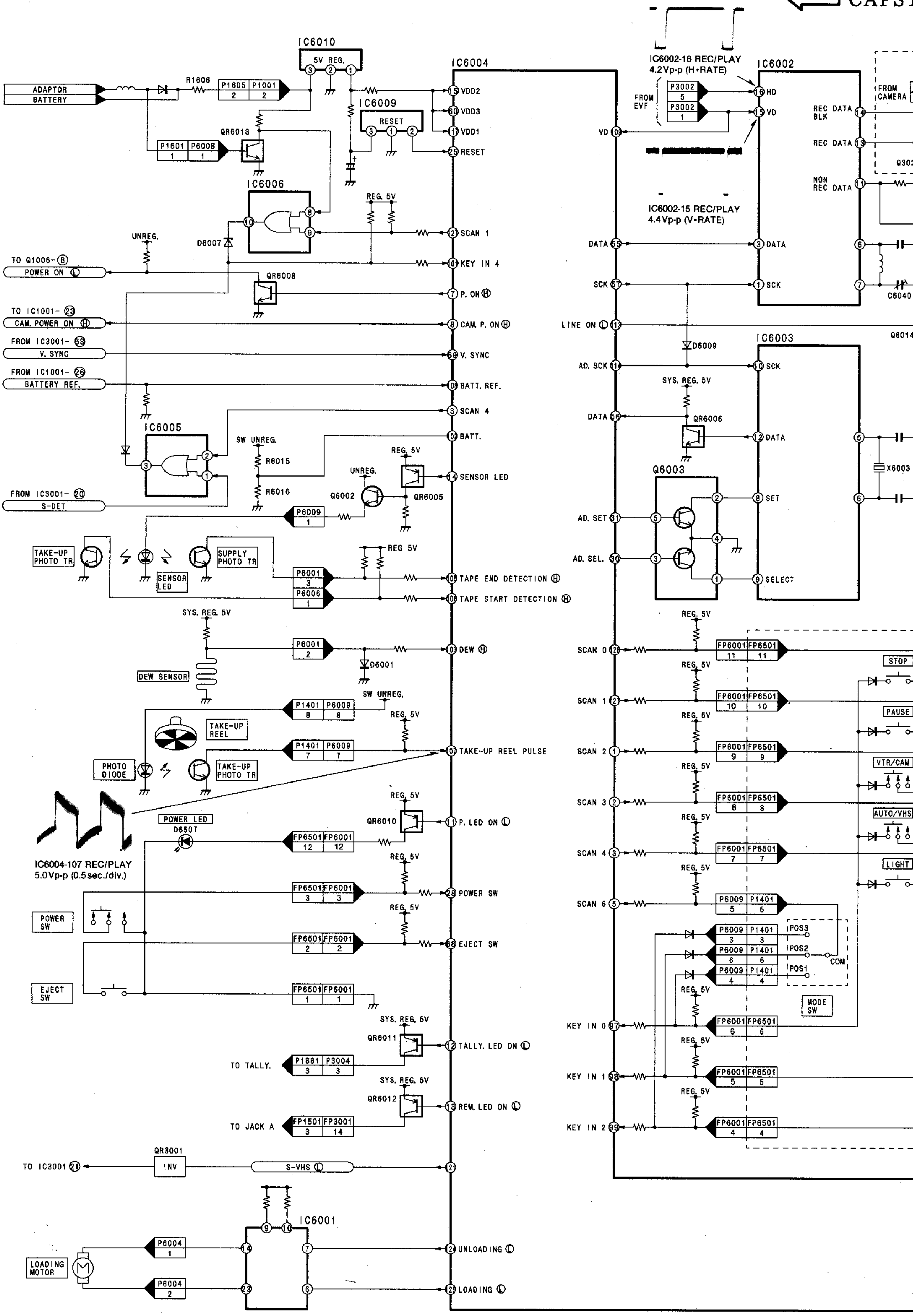
3-4. POWER BLOCK DIAGRAM




VIDEO 5V
B3001 12, 13
B302 12, 13
UNREG
UNREG
L1001
Q1001
SW REG 5V
EVF 5V
P3002 3
D1107
D1107
RF 5V
FP3001 8
FP1501 4
L1002
L1003
REG 5V
SYS. REG
VOLTAGE CTL
PWM COMPARATOR &BUFFER
L1103
MIC 5V
VR1001
5V ADJ
IC1001-11 STOP
1.2Vp-p (1µsec./div.)
SW UNREG
TRI-WAVE OSC
ERROR AMP
D1012
Q2101
D1202
REG 9V
FP2102 13
Q1003
L1007
L1008
D1004
REG 3. 5V
VOLTAGE CTL
PWM COMPARATOR &BUFFER
TL1002
Q1005
CAM 3. 5V
B3001 22, 23
B302 22, 23
IC1001-9 STOP
1.2Vp-p (1µsec./div.)
QR1002
D1008
ERROR AMP
VR1002
3. 5V ADJ
CAMERA. P. ON Ⓗ
IC6004 8
Q1002
CAM 5V
B3001 8, 9
B302 8, 9
TL1001
Q1062
L1062
CAP VM
IC2103 24
D1062
IC1102
L1062
C1063
CAP FB
IC2103 17
Q1061
L1061
CYL VM
IC2101 12
IC2102 7
D1061
L1061
C1061
CYL SW
IC2101 17
IC1001-27 STOP
0.7Vp-p (1µsec./div.)
QR1061
BUFFER
TRI-WAVE
IC2101 16
T1001
TL1004
D1006
CAM 15V
B3001 20
B302 20
IC1001-15 STOP
0.7Vp-p (1µsec./div.)
TL1003
D1005
CAM 9V
B3001 10, 11
B302 10, 11
TL1005
VOLTAGE CTL
PWM COMPARATOR &BUFFER
Q1004
PULSE AMP
D1007
CAM -8V
B3001 21
B302 21
VR1003
CAMERA 9V ADJ
T1001-6 STOP
30Vp-p (1µsec./div.)
ERROR AMP
T1001-4 STOP
26Vp-p (1µsec./div.)
T1001-3 STOP
50Vp-p (1µsec./div.)
10
11
30
9
1
27
14
15
22

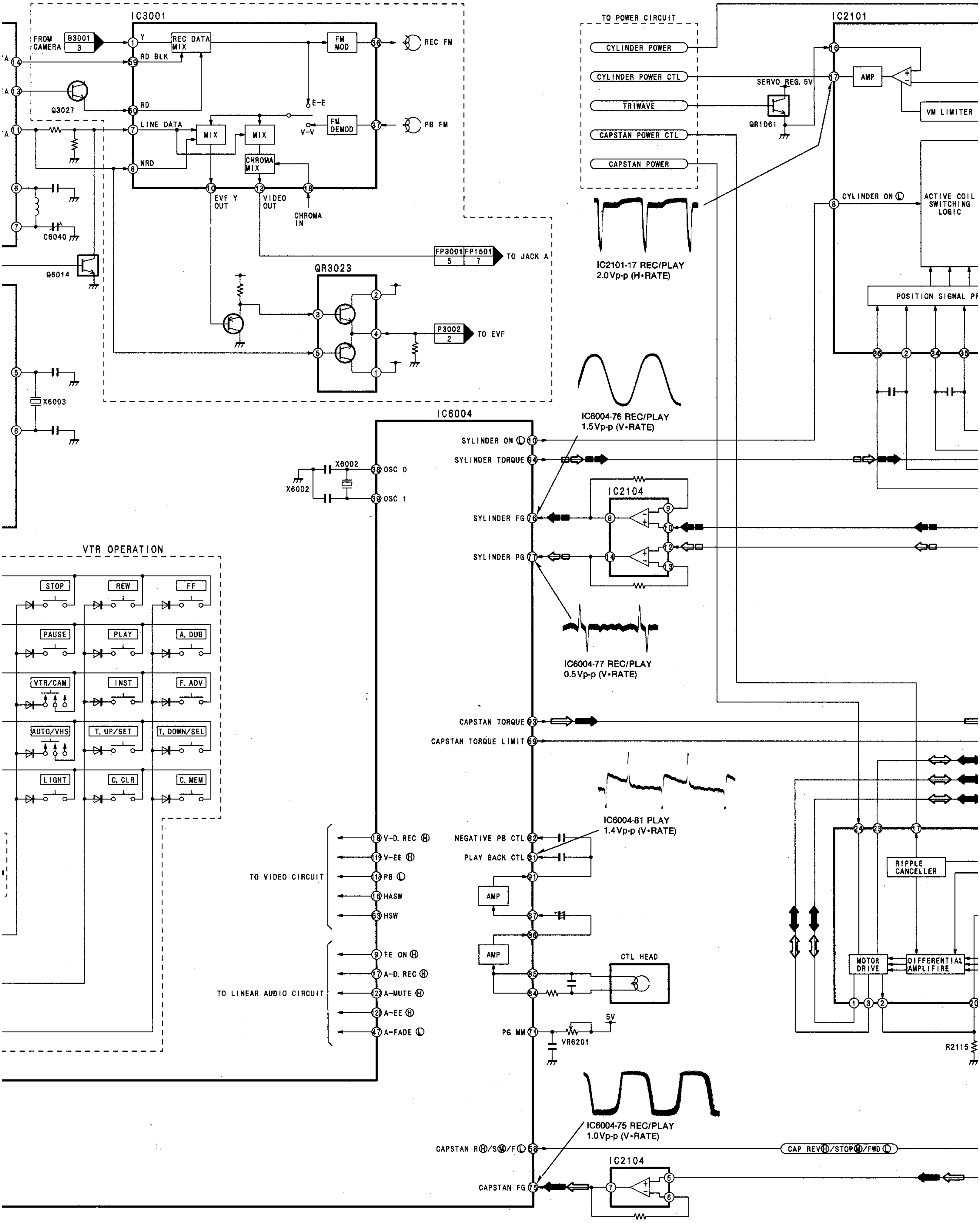

IDEO 5V
TO VIDEO
B3001 B302 12, 13 12, 13
TO SENSOR
UNREG
TO SYSTEM CTL. SERVO
P3002 3
TO EVF
P3001 FP1501 8 4
TO VIDEO
REG 5V
TO SYSTEM CTL. SERVO, SUB SERVO, VIDEO VITC
SYS. REG
TO SYSTEM CTL. SERVO VIDEO
MIC 5V
TO MIC
W UNREG
TO SYSTEM CTL. SERVO
FP2102 13
TO CAP MOTOR
EG 3.5V
TO VIDEO LINER AUDIO
3001 B302 2, 23 22, 23
TO PROCESS
C6004 8
FROM SYSTEM CTL. SERVO
B3001 B302 8, 9 8, 9
TO PROCESS
IC2103 24
C2103 17
C2101 IC2102 12 7
TO SUB SERVO
C2101 17
IC2101 16
B3001 B302 20 20
TO PROCESS
B3001 B302 10, 11 10, 11
B3001 B302 21 21

3-5. SYSTEM CONTROL & SERVO BLOCK DIAGRAM



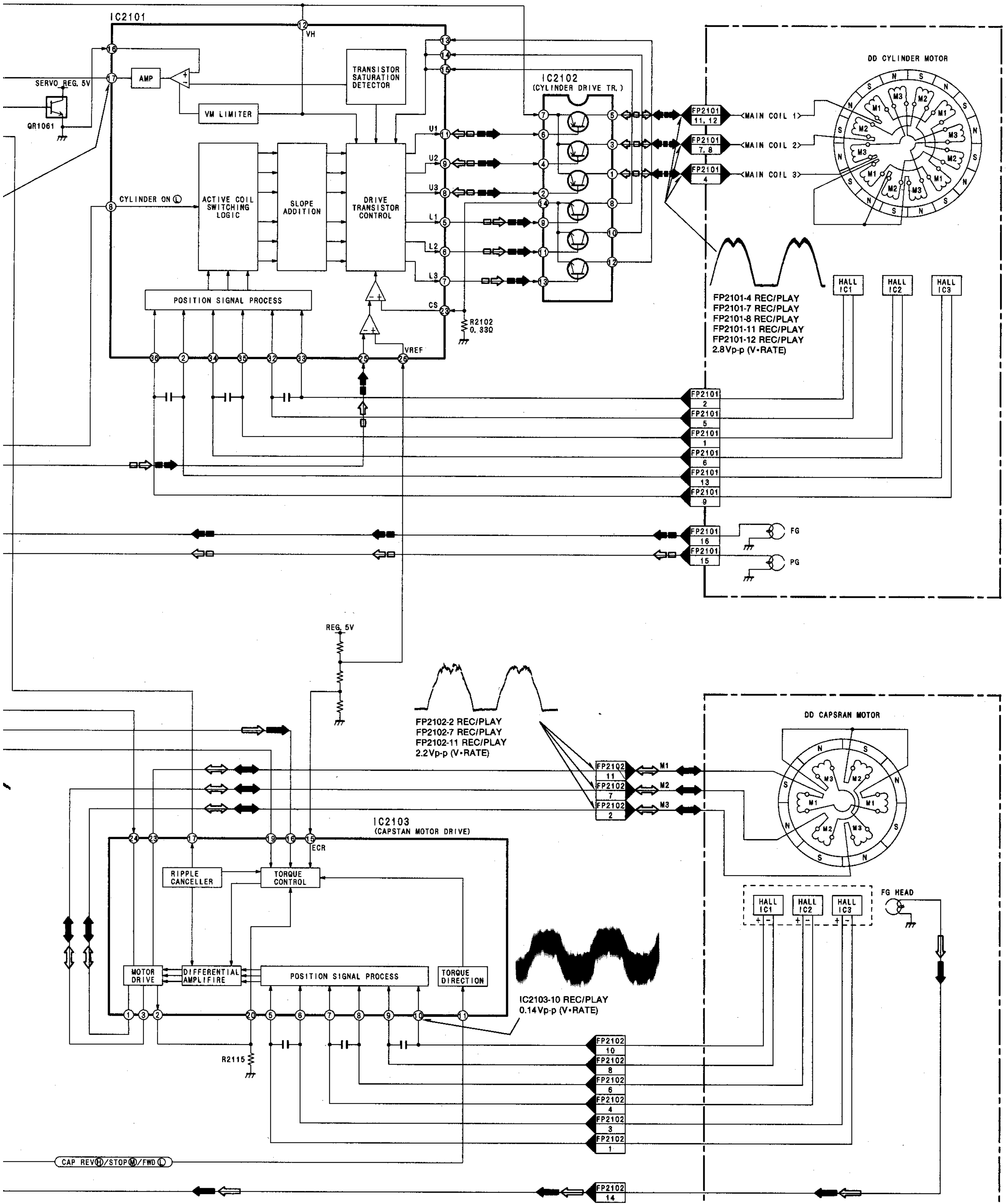
CAPSTAN SERVO SPEED LOOP ◀■ CYLINDER SERVO SPEED LOOP

CAPSTAN SERVO PHASE LOOP ◁□ CYLINDER SERVO PHASE LOOP



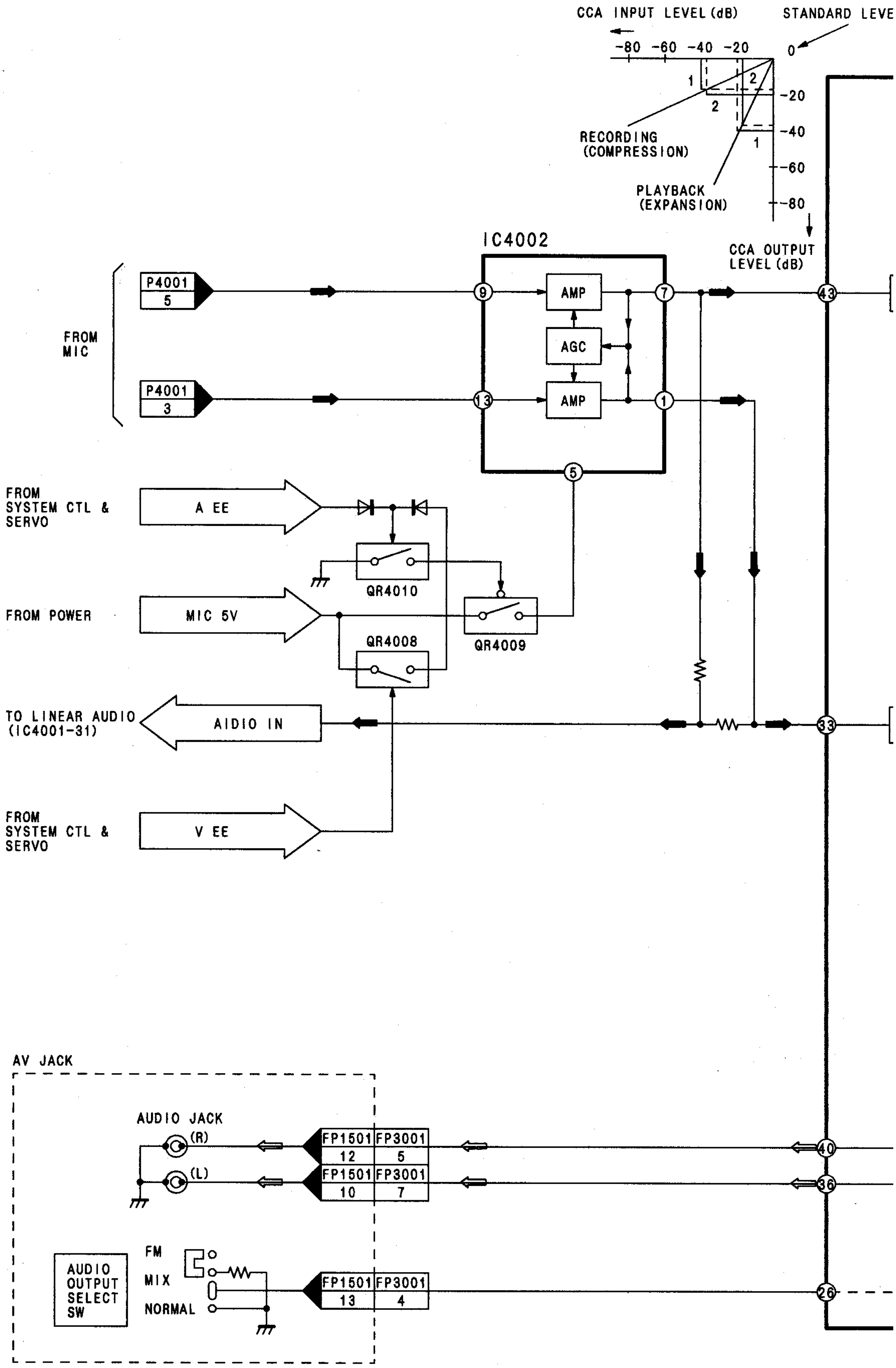
LOOP

LOOP



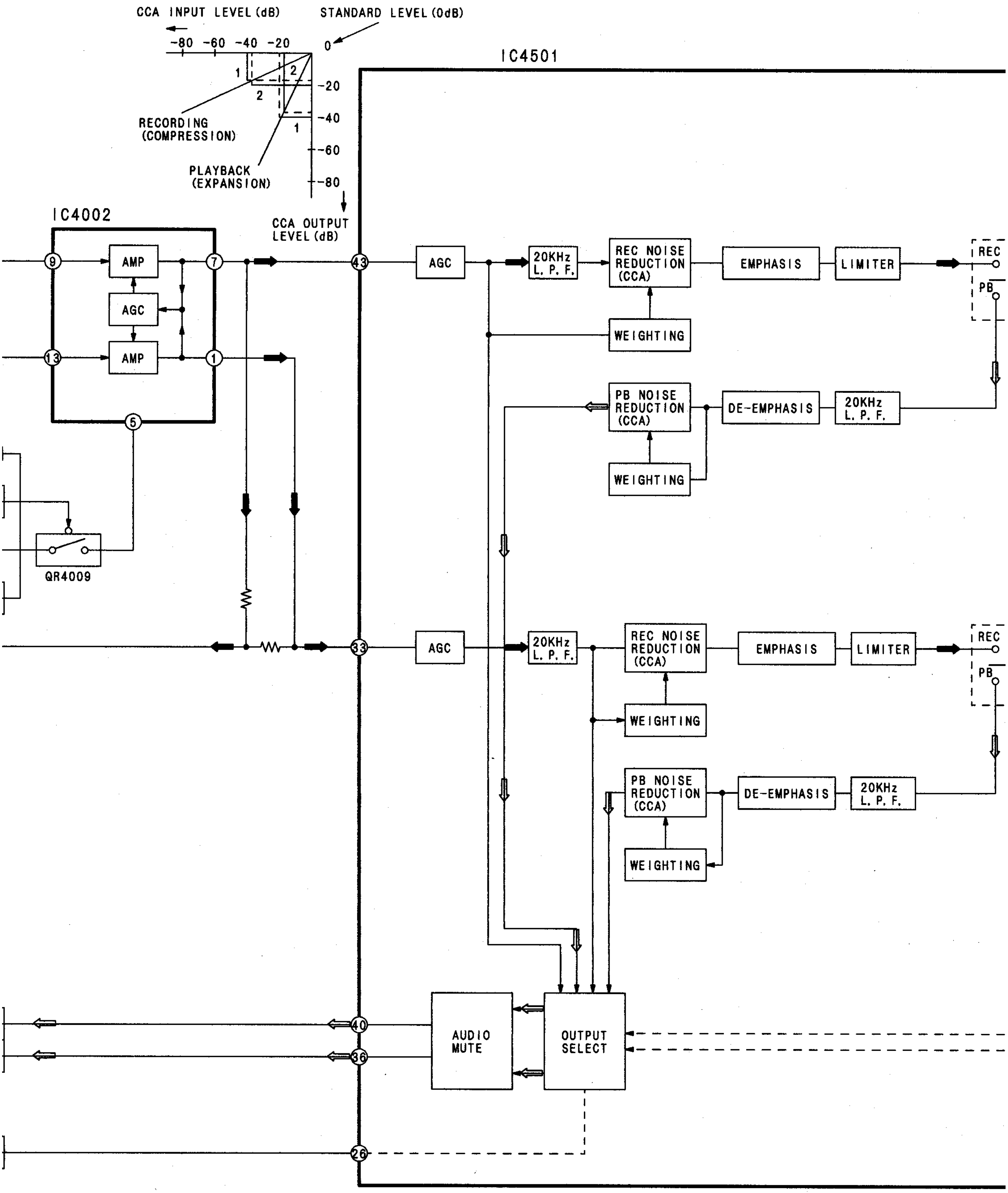
IC2101
VH
SERVO REG. 5V
QR1061
AMP
VM LIMITER
TRANSISTOR SATURATION DETECTOR
IC2102 (CYLINDER DRIVE TR.)
ACTIVE COIL SWITCHING LOGIC
SLOPE ADDITION
DRIVE TRANSISTOR CONTROL
CYLINDER ON Ⓛ
U1
U2
U3
L1
L2
L3
CS
VREF
POSITION SIGNAL PROCESS
R2102 0.33Ω
DD CYLINDER MOTOR
FP2101 11, 12
FP2101 7, 8
FP2101 4
MAIN COIL 1
MAIN COIL 2
MAIN COIL 3
M1
M2
M3
N
S
FP2101-4 REC/PLAY
FP2101-7 REC/PLAY
FP2101-8 REC/PLAY
FP2101-11 REC/PLAY
FP2101-12 REC/PLAY
2.8Vp-p (V•RATE)
HALL IC1
HALL IC2
HALL IC3
FP2101 2
FP2101 5
FP2101 1
FP2101 6
FP2101 13
FP2101 9
FP2101 16
FP2101 15
FG
PG
REG. 5V
FP2102-2 REC/PLAY
FP2102-7 REC/PLAY
FP2102-11 REC/PLAY
2.2Vp-p (V•RATE)
DD CAPSRAN MOTOR
FP2102 11
FP2102 7
FP2102 2
IC2103 (CAPSTAN MOTOR DRIVE)
ECR
RIPPLE CANCELLER
TORQUE CONTROL
MOTOR DRIVE
DIFFERENTIAL AMPLIFIRE
POSITION SIGNAL PROCESS
TORQUE DIRECTION
IC2103-10 REC/PLAY
0.14Vp-p (V•RATE)
FG HEAD
R2115
FP2102 10
FP2102 8
FP2102 6
FP2102 4
FP2102 3
FP2102 1
CAP REVⒽ/STOPⓂ/FWDⓁ
FP2102 14

3-6. Hi-Fi AUDIO BLOCK DIAGRAM



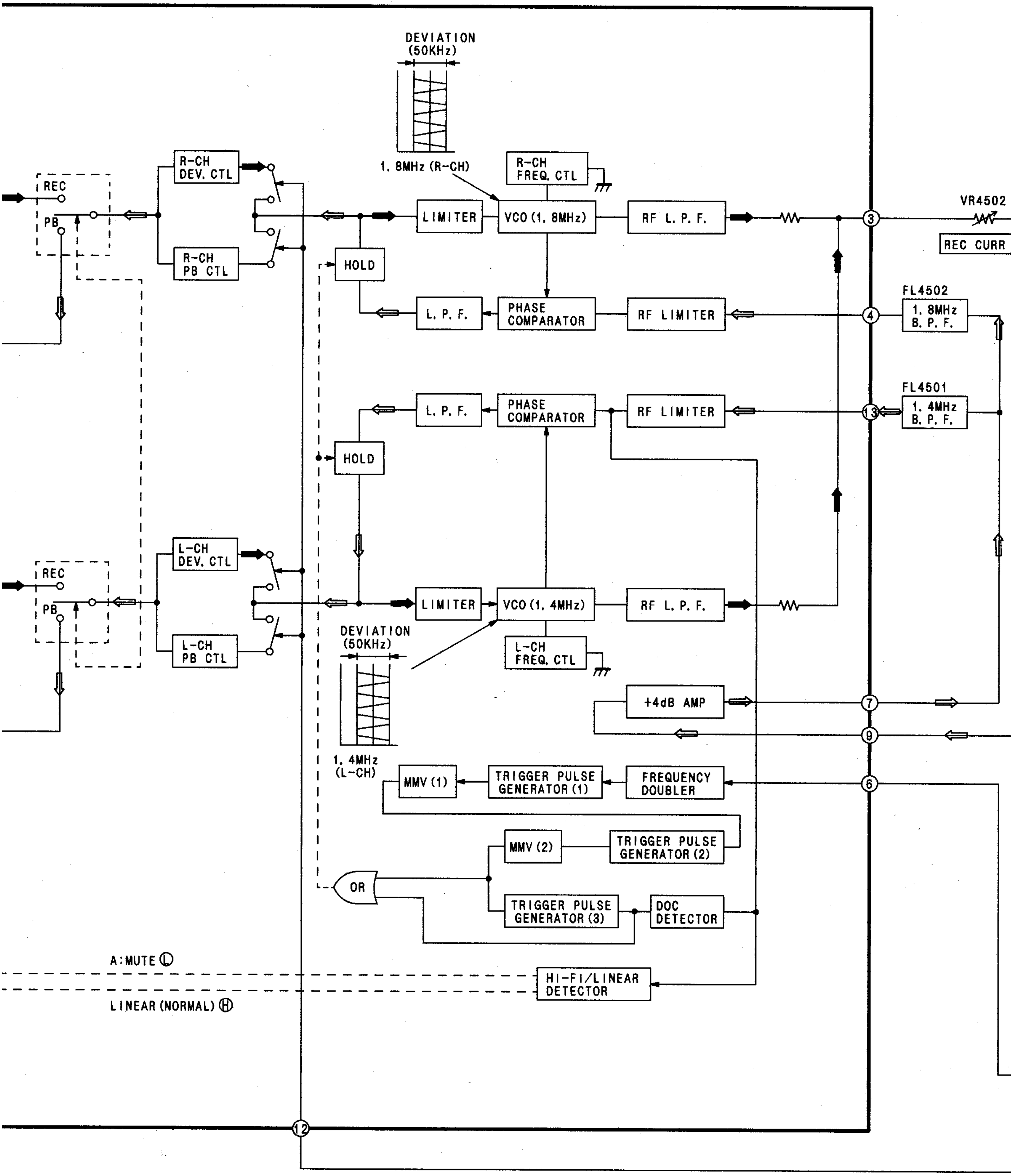
AGRAM

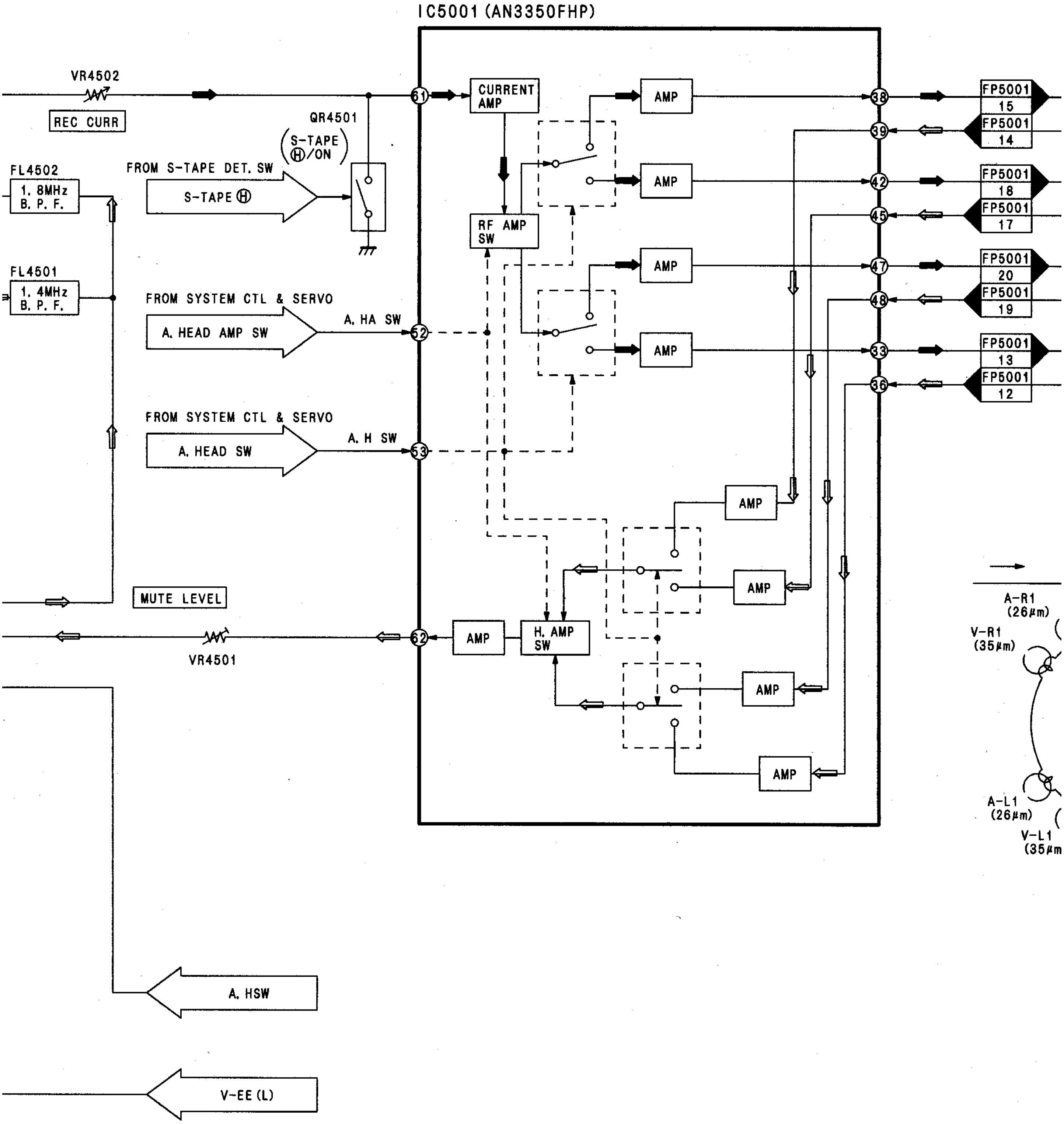
Hi-Fi AUDIO Section

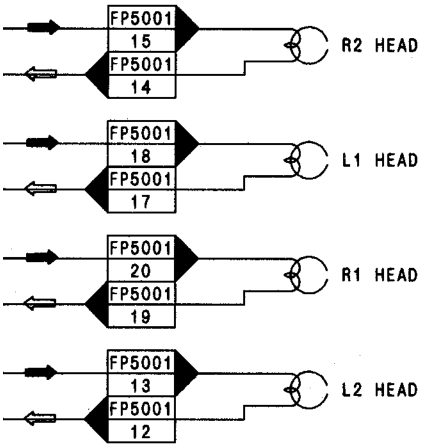


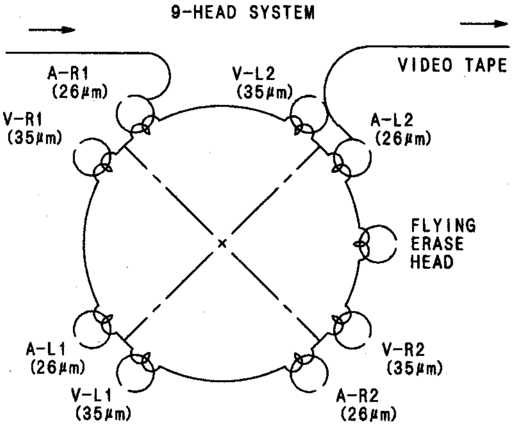
⬅ MAIN SIGNAL PATH IN REC MODE

⇦ MAIN SIGNAL PATH IN PLAYBACK MODE

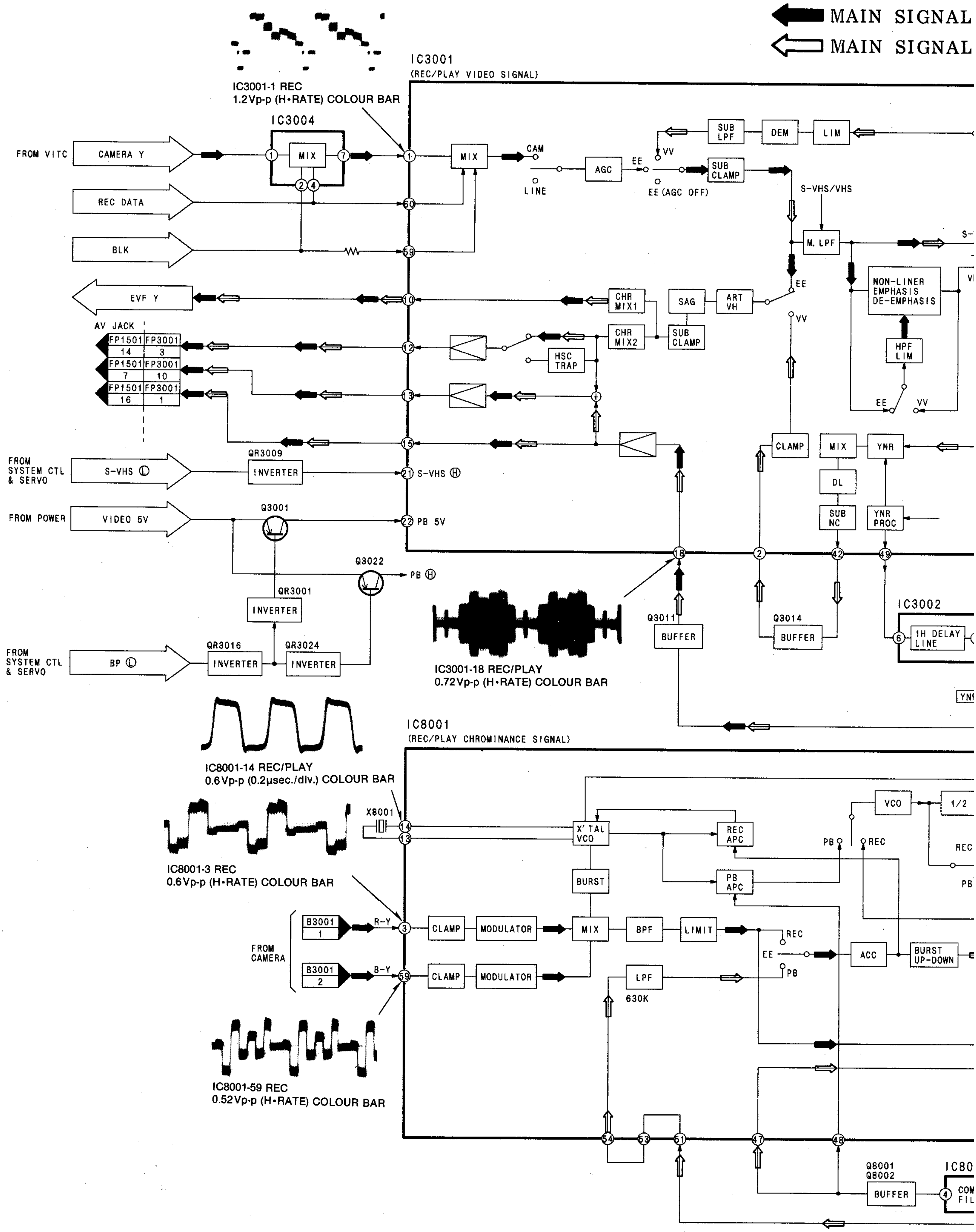



IC5001 (AN3350FHP)
VR4502
REC CURR
QR4501
(S-TAPE Ⓗ/ON)
FL4502
1. 8MHz B. P. F.
FROM S-TAPE DET. SW
S-TAPE Ⓗ
FL4501
1. 4MHz B. P. F.
FROM SYSTEM CTL & SERVO
A. HEAD AMP SW
A. HA SW
FROM SYSTEM CTL & SERVO
A. HEAD SW
A. H SW
MUTE LEVEL
VR4501
A. HSW
V-EE (L)
61
52
53
62
CURRENT AMP
RF AMP SW
AMP
AMP
AMP
AMP
AMP
AMP
AMP
AMP
AMP
H. AMP SW
38
39
42
45
47
48
33
36
FP5001 15
FP5001 14
FP5001 18
FP5001 17
FP5001 20
FP5001 19
FP5001 13
FP5001 12
A-R1 (26µm)
V-R1 (35µm)
A-L1 (26µm)
V-L1 (35µm


FP5001
15
FP5001
14
R2 HEAD
FP5001
18
FP5001
17
L1 HEAD
FP5001
20
FP5001
19
R1 HEAD
FP5001
13
FP5001
12
L2 HEAD


9-HEAD SYSTEM
VIDEO TAPE
A-R1
(26µm)
V-L2
(35µm)
V-R1
(35µm)
A-L2
(26µm)
FLYING
ERASE
HEAD
A-L1
(26µm)
V-R2
(35µm)
V-L1
(35µm)
A-R2
(26µm)

3-7. LUMINANCE/CHROMINANCE & HEAD AMP BLOCK DIAGRAM



IC3001-1 REC
1.2Vp-p (H•RATE) COLOUR BAR

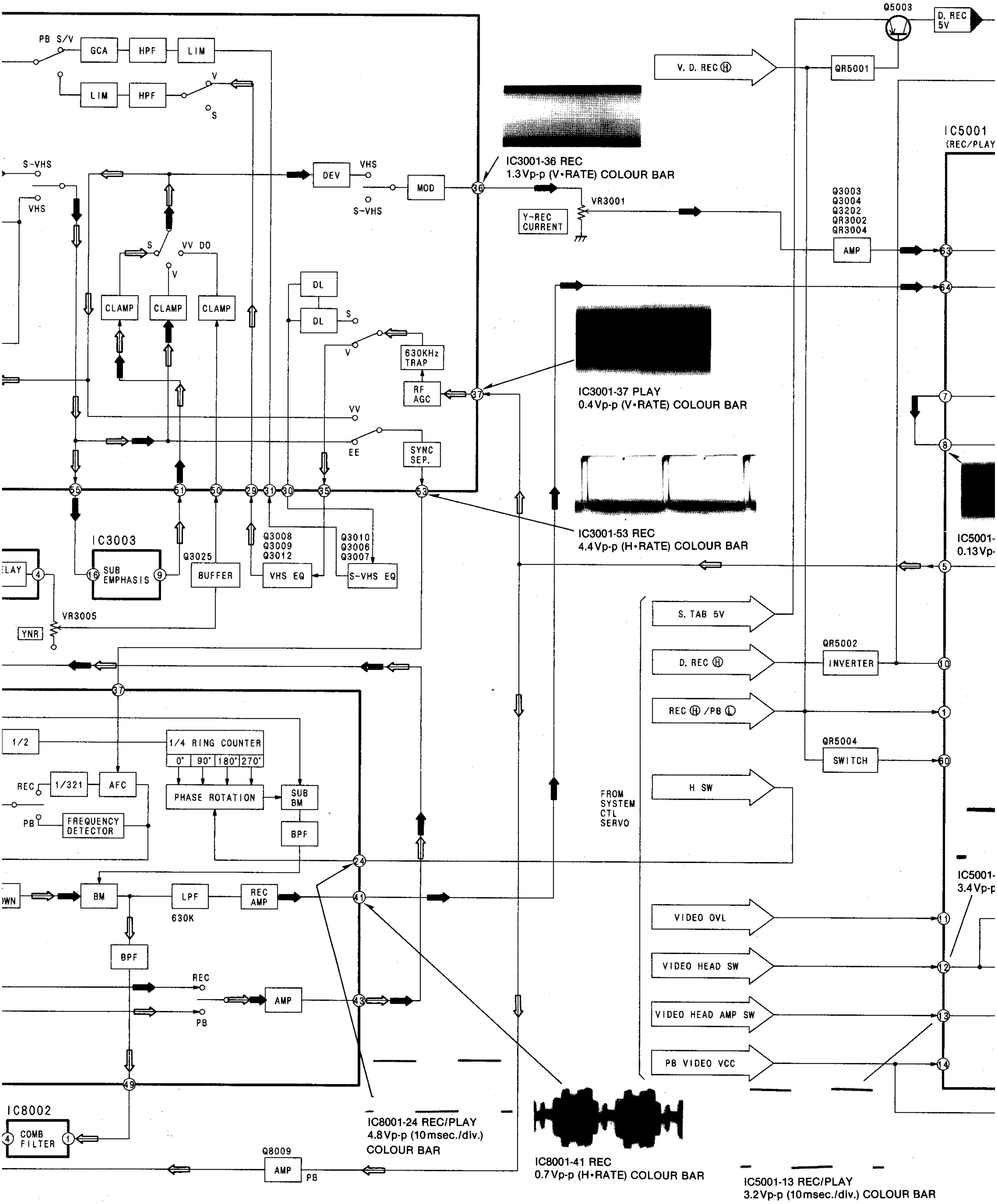
IC3001-18 REC/PLAY
0.72Vp-p (H•RATE) COLOUR BAR

IC8001-14 REC/PLAY
0.6Vp-p (0.2µsec./div.) COLOUR BAR

IC8001-3 REC
0.6Vp-p (H•RATE) COLOUR BAR

IC8001-59 REC
0.52Vp-p (H•RATE) COLOUR BAR

AL PATH IN REC MODE
AL PATH IN PLAYBACK MODE



IC3001-36 REC
1.3Vp-p (V•RATE) COLOUR BAR

IC3001-37 PLAY
0.4Vp-p (V•RATE) COLOUR BAR

IC3001-53 REC
4.4Vp-p (H•RATE) COLOUR BAR

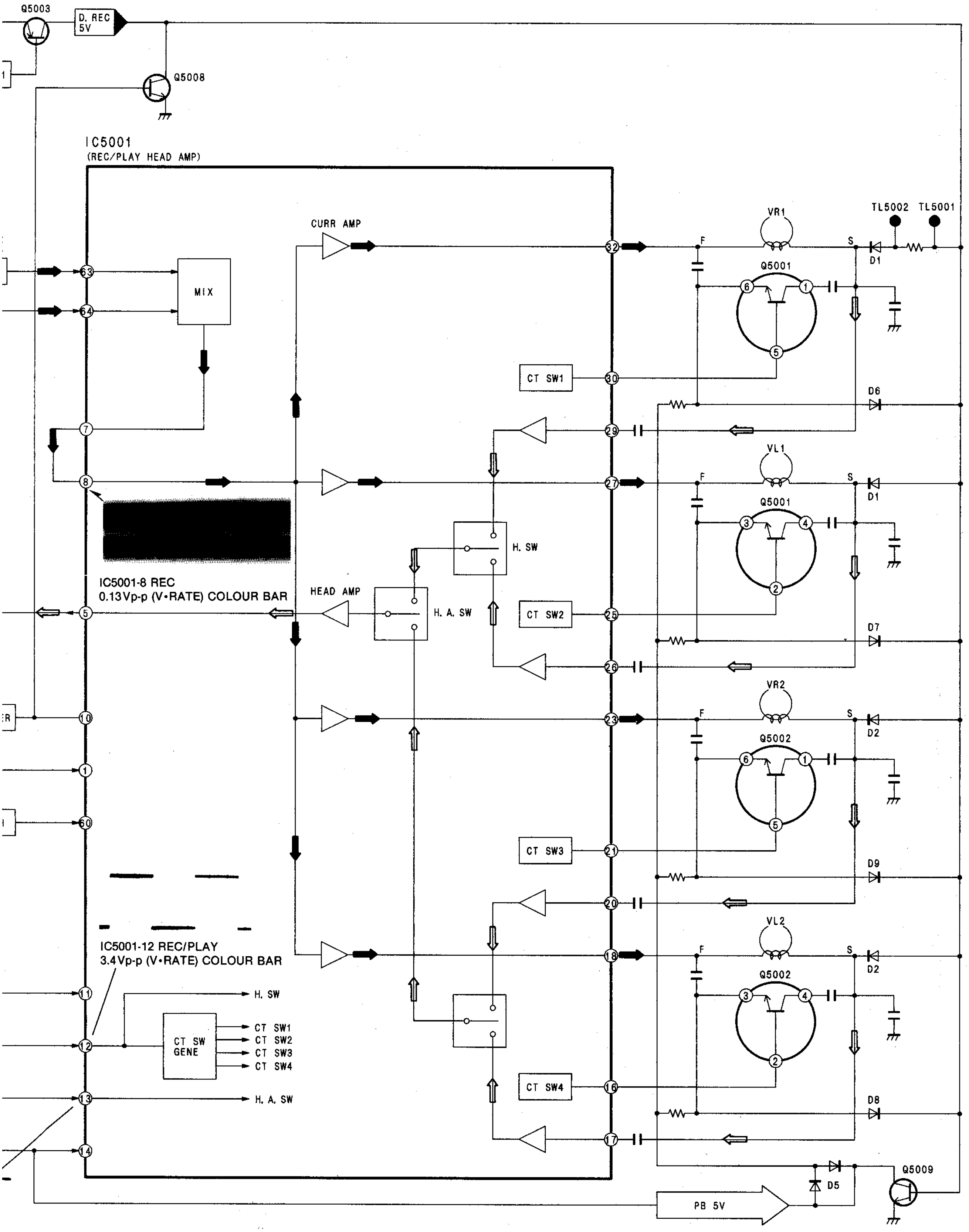
IC5001-
0.13Vp-

IC5001-
3.4Vp-p

IC8001-24 REC/PLAY
4.8Vp-p (10msec./div.)
COLOUR BAR

IC8001-41 REC
0.7Vp-p (H•RATE) COLOUR BAR

IC5001-13 REC/PLAY
3.2Vp-p (10msec./div.) COLOUR BAR



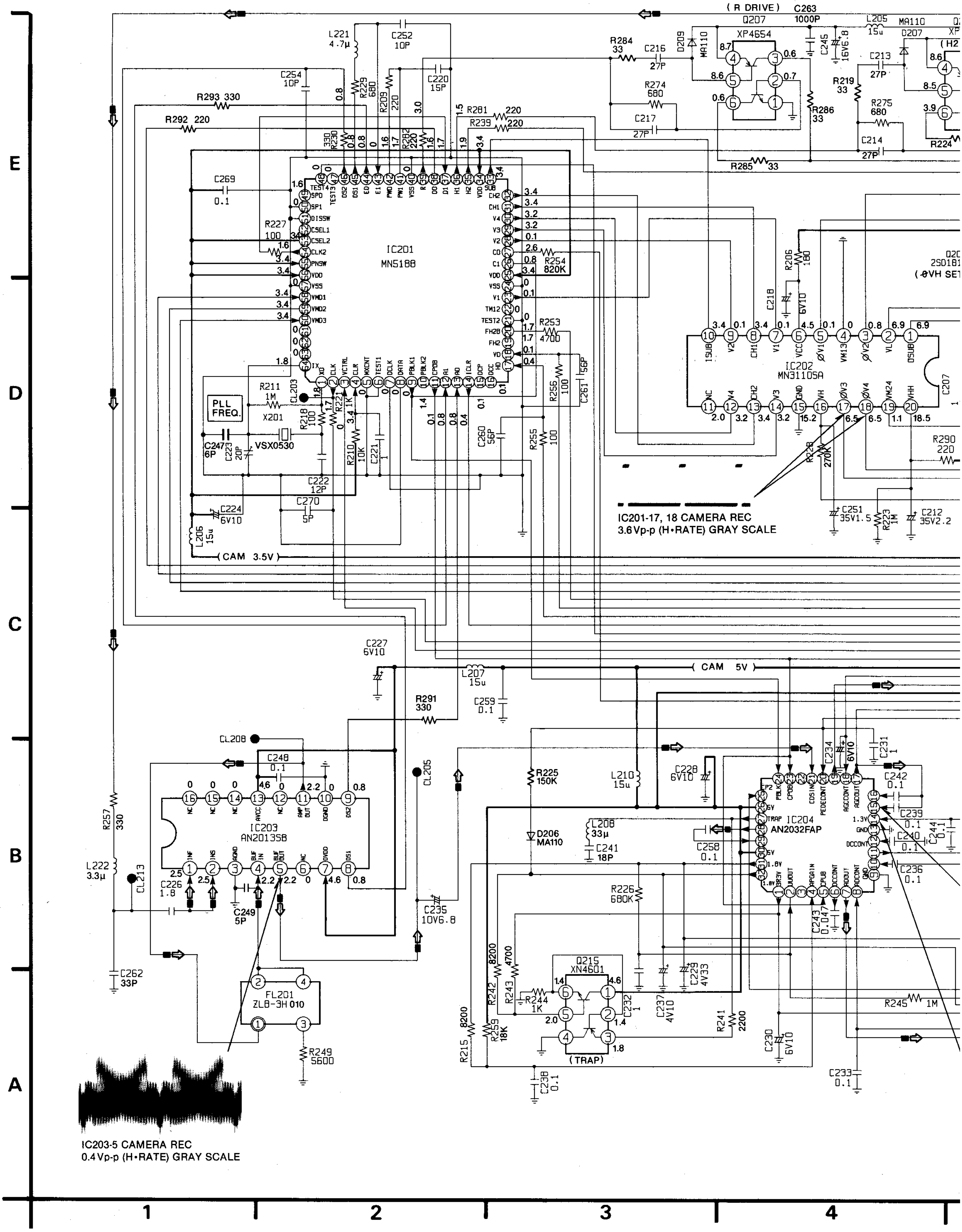
IC5001-8 REC
0.13Vp-p (V•RATE) COLOUR BAR

IC5001-12 REC/PLAY
3.4Vp-p (V•RATE) COLOUR BAR

COLOUR BAR

3-8. CCD DRIVE SCHEMATIC DIAGRAM

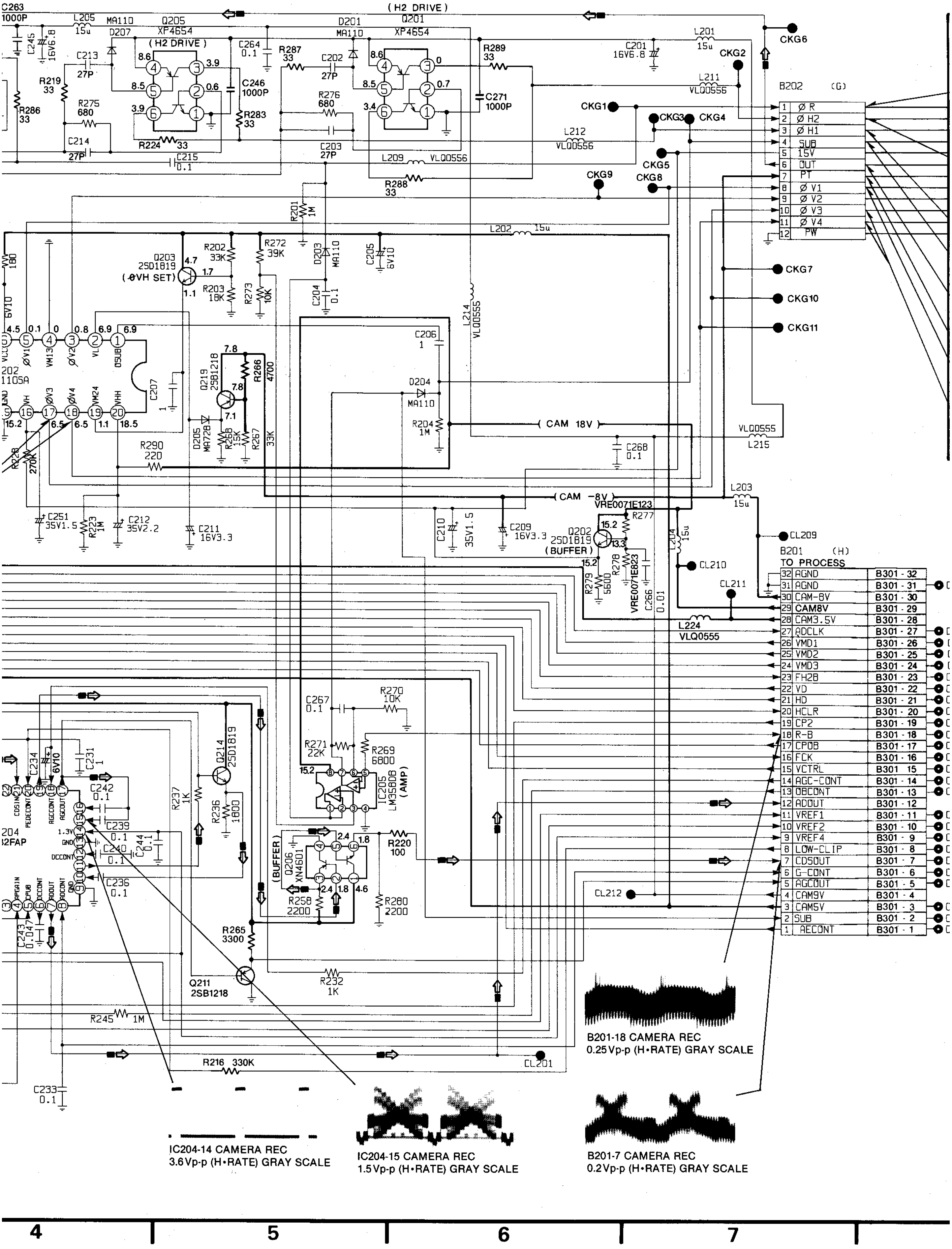
VIDEO SIGN

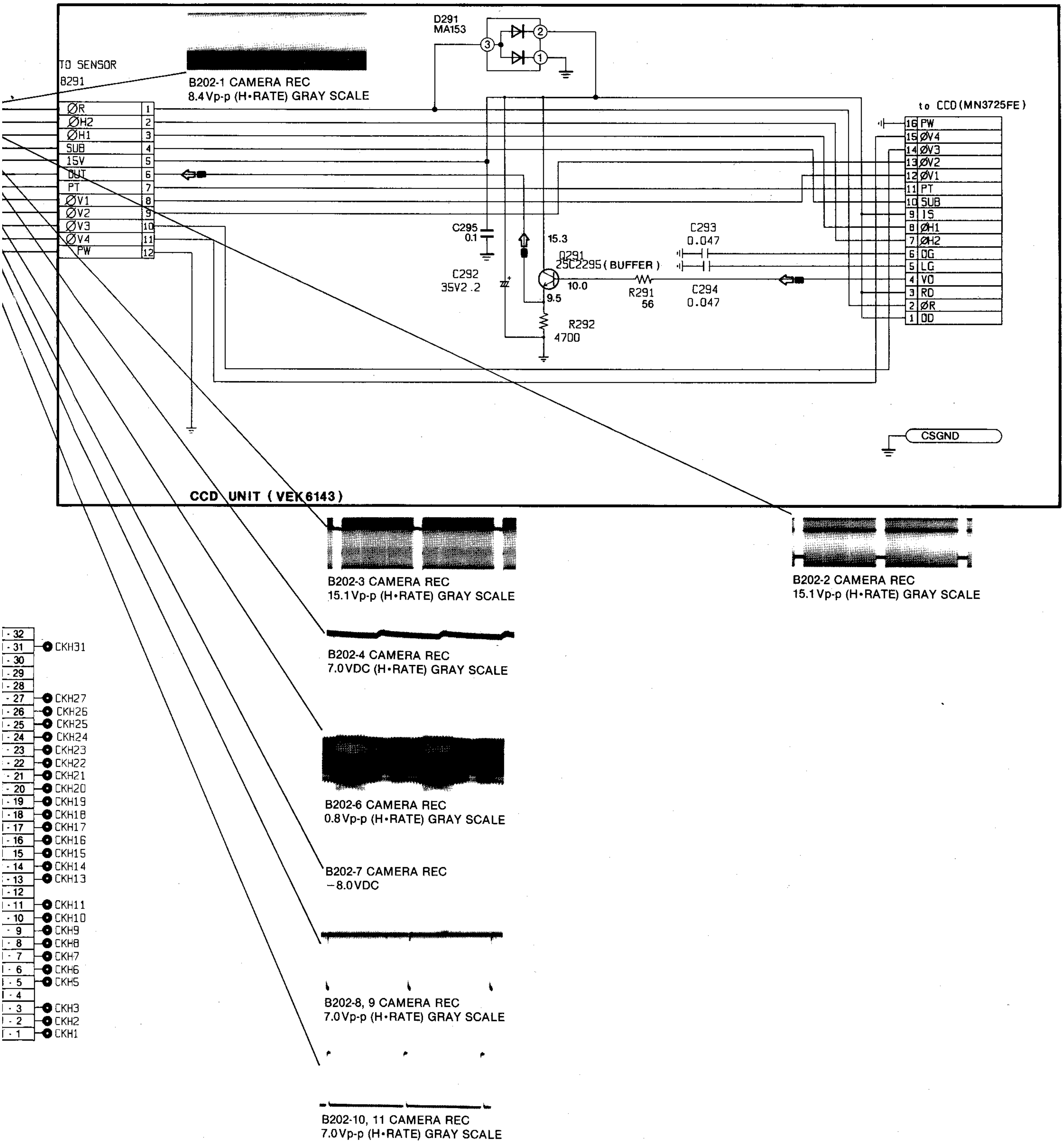


IC201-17, 18 CAMERA REC
3.6Vp-p (H•RATE) GRAY SCALE

IC203-5 CAMERA REC
0.4Vp-p (H•RATE) GRAY SCALE

VIDEO SIGNAL

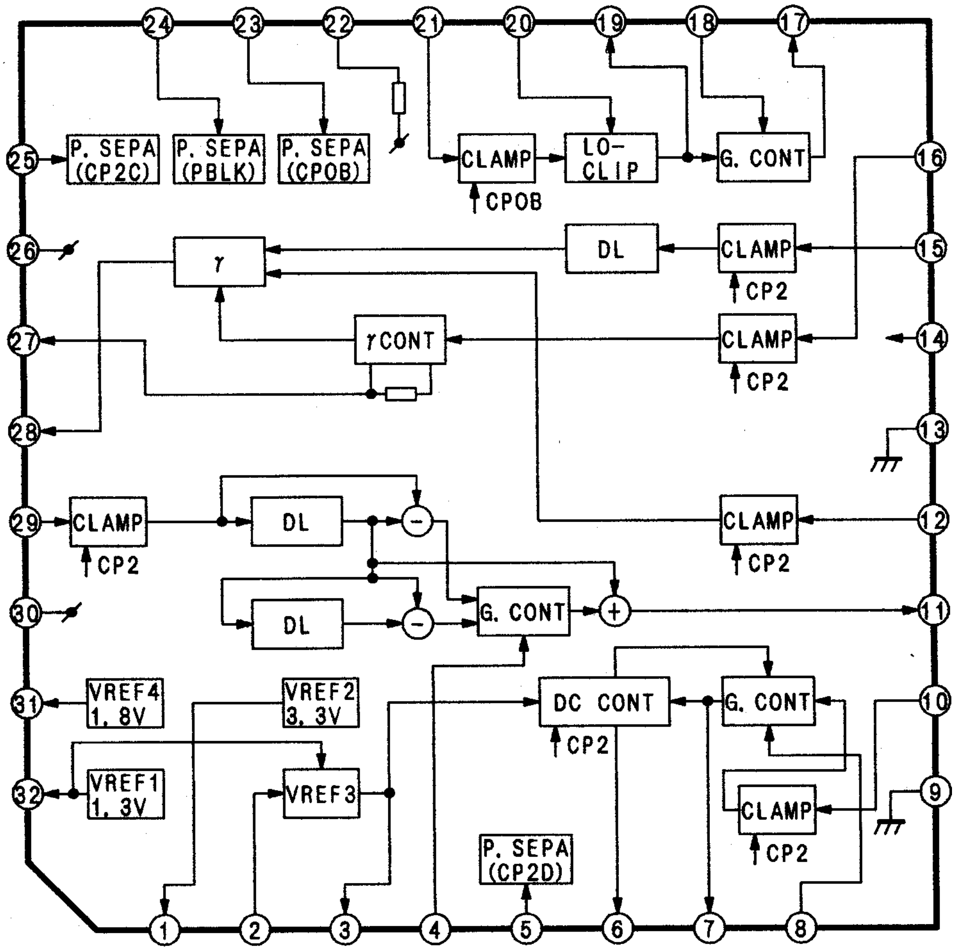




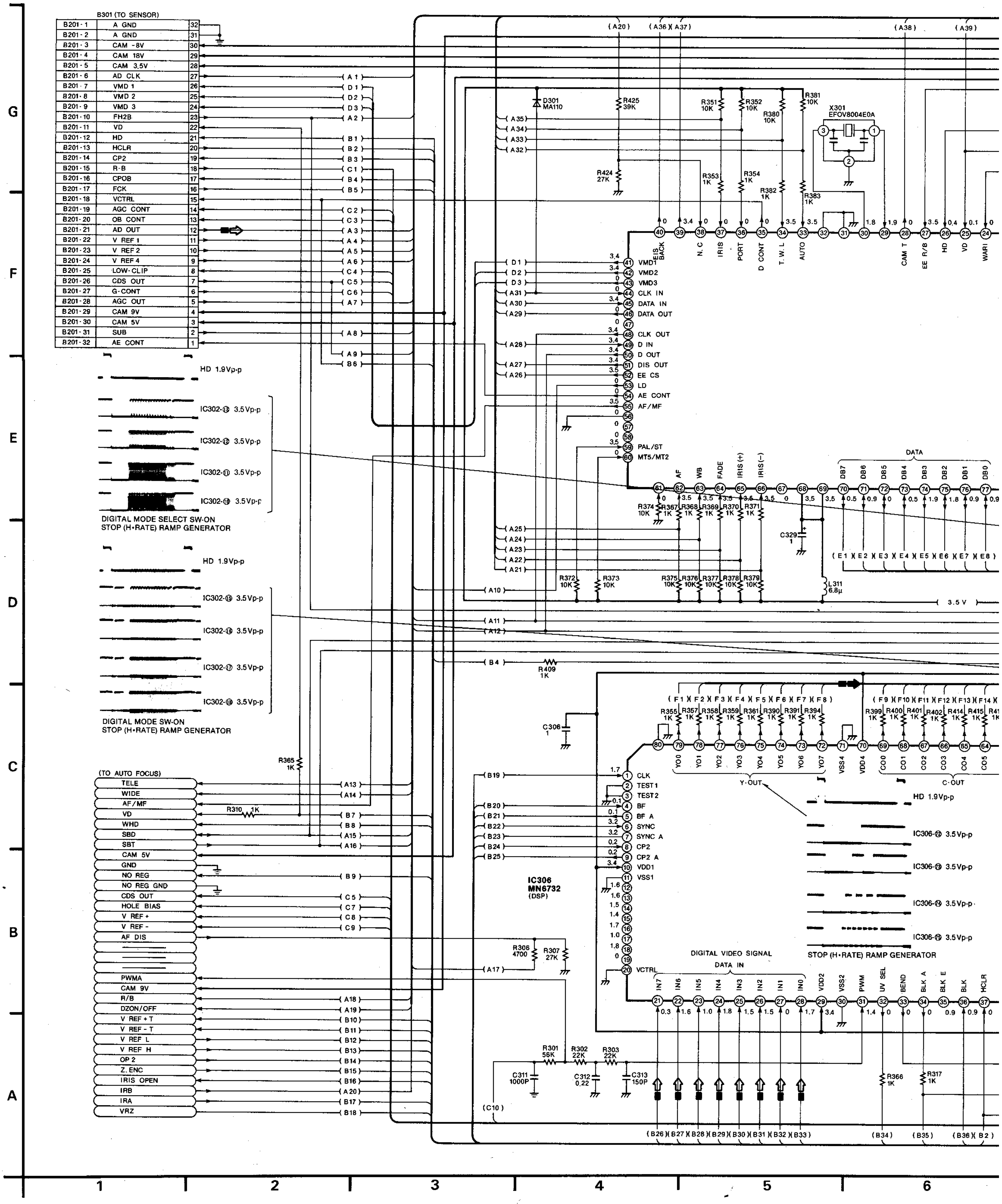
NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE WITH AIM THE CAMERA AT THE LOGARITHMIC GRAY SCALE CHART.

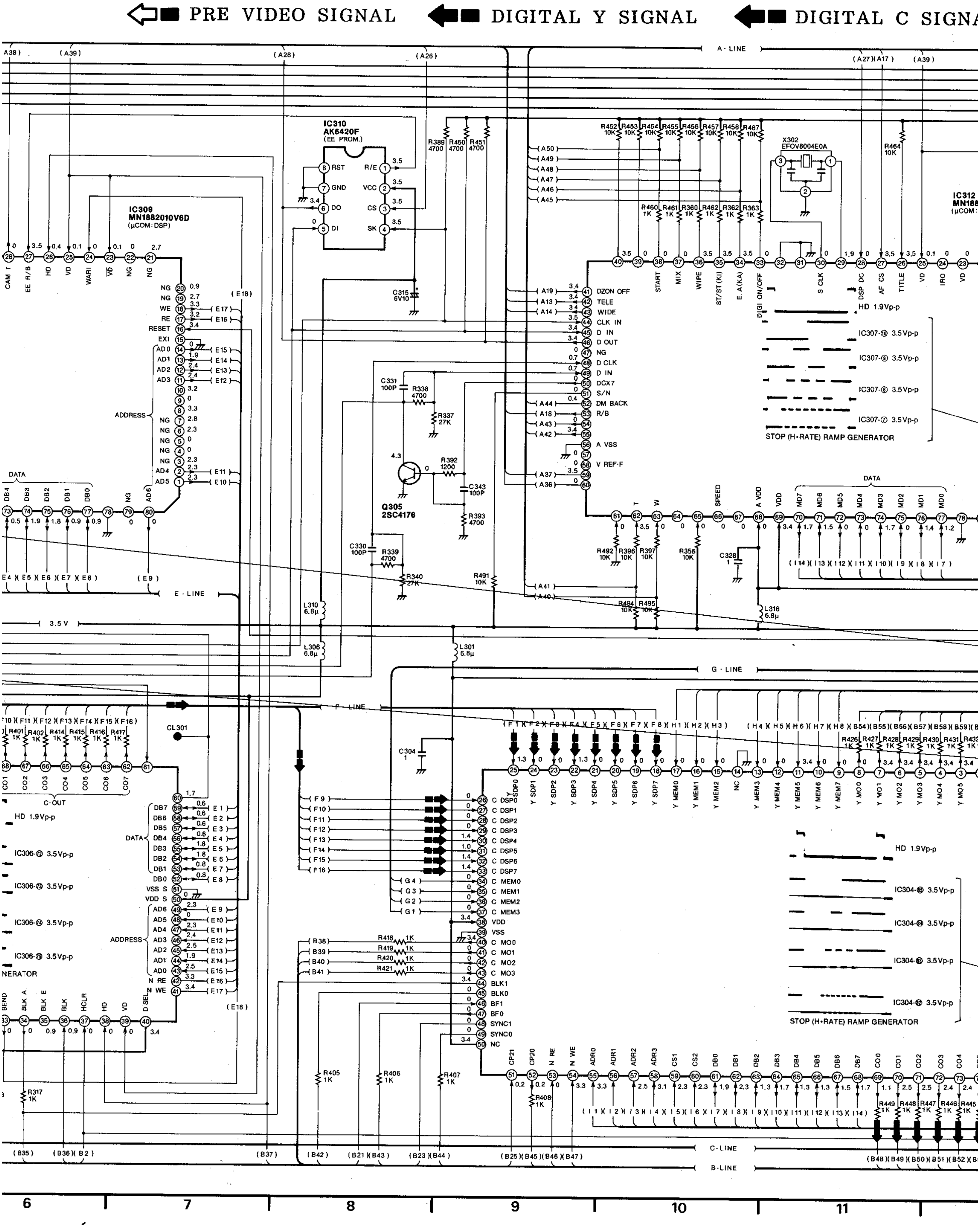
NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

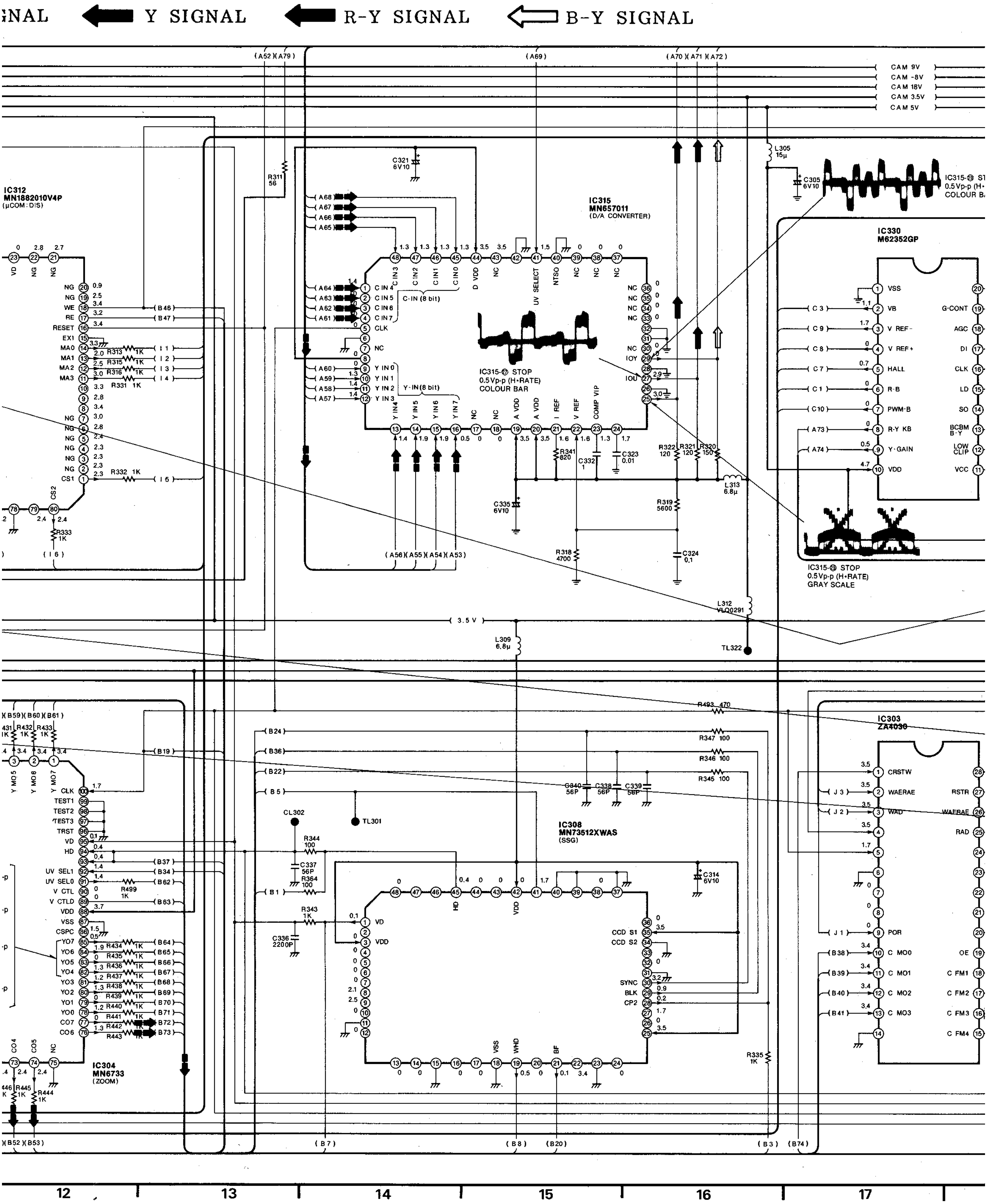
IC204
AN2033FAP
AN2032FAP



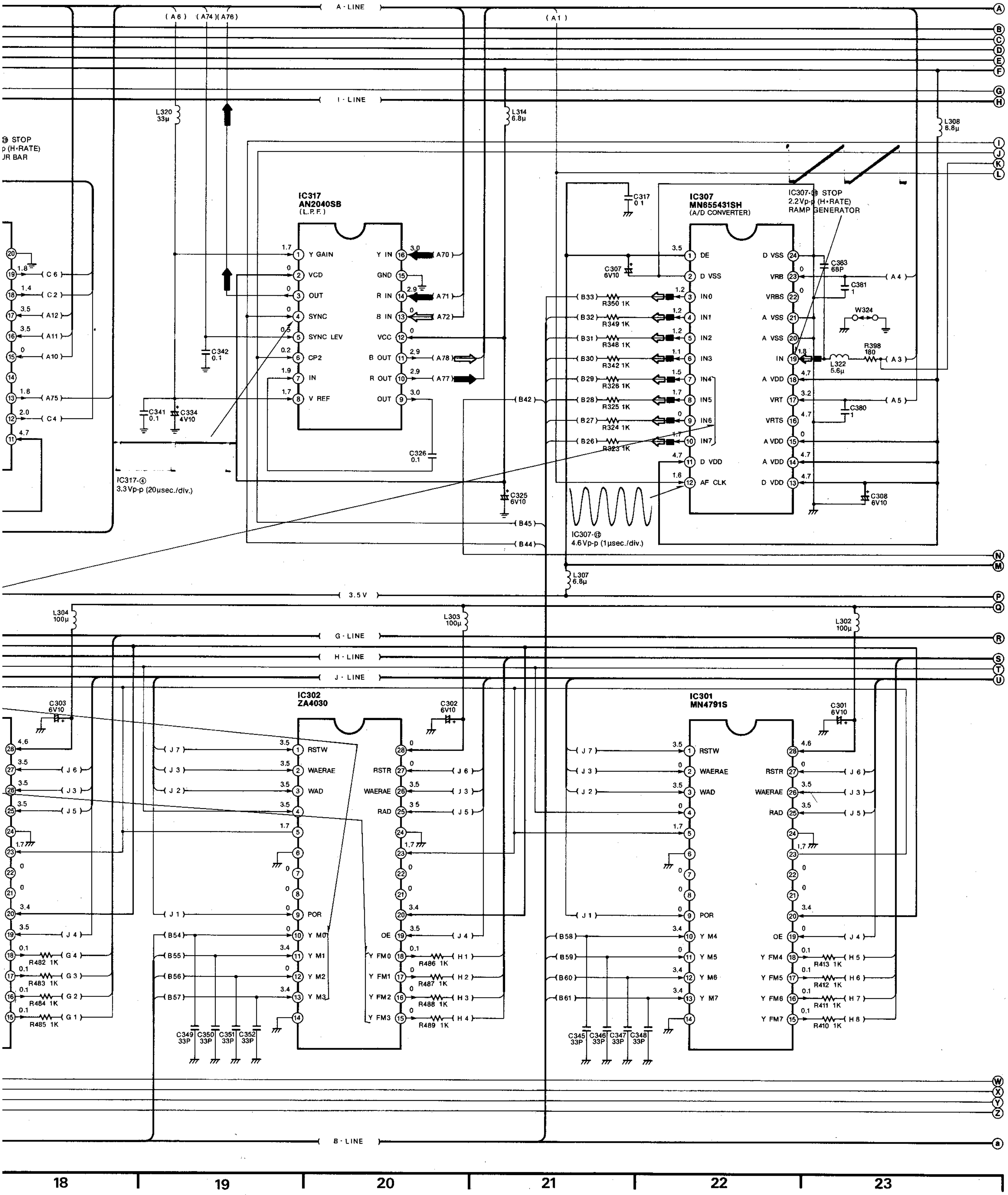
3-10. PROCESS, CAMERA OPERATION SCHEMATIC DIAGRAM

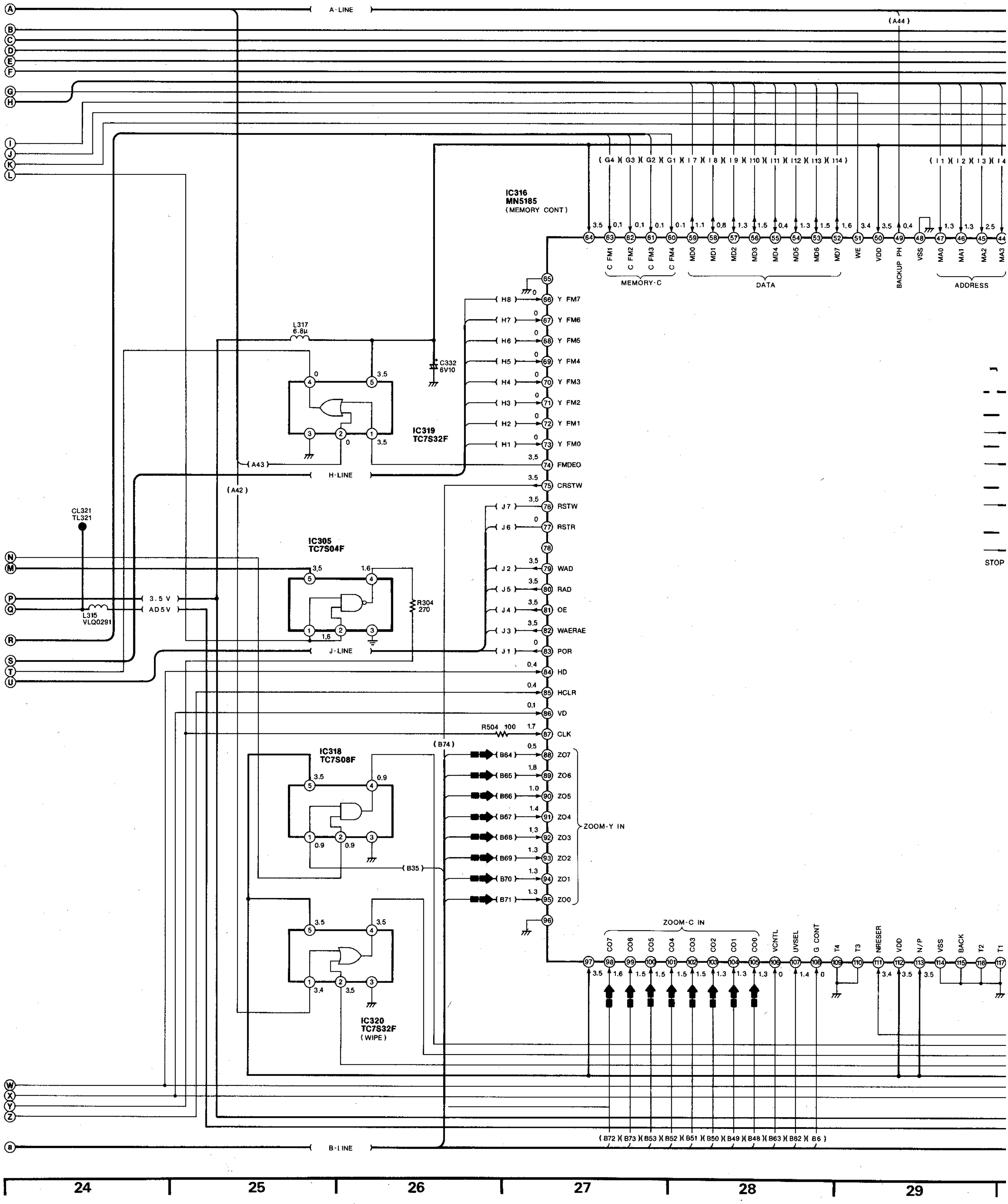


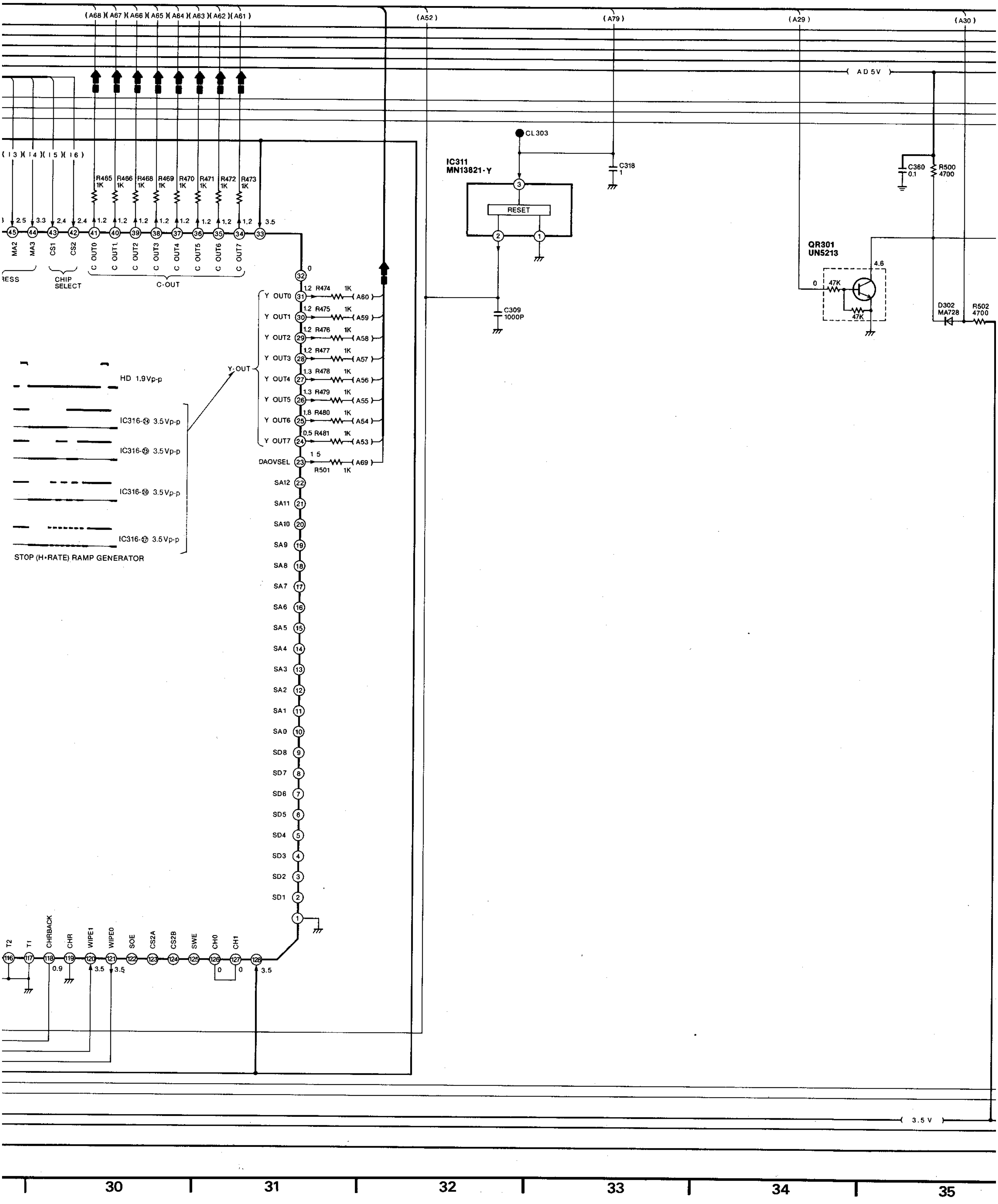

PRE VIDEO SIGNAL
DIGITAL Y SIGNAL
DIGITAL C SIGN
A - LINE
E - LINE
G - LINE
F - LINE
C - LINE
B - LINE
3.5 V
IC310
AK6420F
(EE PROM.)
RST
GND
DO
DI
R/E
VCC
CS
SK
IC309
MN1882010V6D
(μCOM:DSP)
IC312
MN188
(μCOM:
X302
EFOV8004E0A
Q305
2SC4176
C315
6V10
C331
100P
R338
4700
R337
27K
R392
1200
C343
100P
R393
4700
C330
100P
R339
4700
R340
27K
R491
10K
L310
6.8μ
L306
6.8μ
L301
6.8μ
L316
6.8μ
C304
1
C328
1
CL301
R389
4700
R450
4700
R451
4700
R452 10K
R453 10K
R454 10K
R455 10K
R456 10K
R457 10K
R458 10K
R467 10K
R460 1K
R461 1K
R360 1K
R462 1K
R362 1K
R363 1K
R464
10K
R492 10K
R396 10K
R397 10K
R358 10K
R494 10K
R495 10K
R418 1K
R419 1K
R420 1K
R421 1K
R405 1K
R406 1K
R407 1K
R408 1K
R317 1K
R401 1K
R402 1K
R414 1K
R415 1K
R416 1K
R417 1K
R426 1K
R427 1K
R428 1K
R429 1K
R430 1K
R431 1K
R449 1K
R448 1K
R447 1K
R446 1K
R445 1K
CAM T
EE R/B
HD
VD
WARI
VD
NG
NG
DATA
ADDRESS
RESET
EX1
DZON OFF
TELE
WIDE
CLK IN
D IN
D OUT
D CLK
DCX7
S/N
DM BACK
R/B
A VSS
V REF-F
START
MIX
WIPE
ST/ST (KI)
E. A(KA)
DIGI ON/OFF
S CLK
DSP DC
AF CS
TITLE
IRO
SPEED
A VDD
VDD
HD 1.9Vp-p
IC307-⑩ 3.5Vp-p
IC307-⑨ 3.5Vp-p
IC307-⑧ 3.5Vp-p
IC307-⑦ 3.5Vp-p
STOP (H•RATE) RAMP GENERATOR
C OUT
IC306-㉒ 3.5Vp-p
IC306-㉓ 3.5Vp-p
IC306-㉔ 3.5Vp-p
IC306-㉕ 3.5Vp-p
NERATOR
VSS S
VDD S
N RE
N WE
BLK A
BLK E
BLK
HCLR
D SEL
C DSP0
C DSP1
C DSP2
C DSP3
C DSP4
C DSP5
C DSP6
C DSP7
C MEM0
C MEM1
C MEM2
C MEM3
VSS
C MO0
C MO1
C MO2
C MO3
BLK1
BLK0
BF1
BF0
SYNC1
SYNC0
NC
Y SDP0
Y SDP1
Y SDP2
Y SDP3
Y SDP4
Y SDP5
Y SDP6
Y SDP7
Y MEM0
Y MEM1
Y MEM2
Y MEM3
Y MEM4
Y MEM5
Y MEM6
Y MEM7
Y MO0
Y MO1
Y MO2
Y MO3
Y MO4
Y MO5
CP21
CP20
ADR0
ADR1
ADR2
ADR3
CS1
CS2
HD 1.9Vp-p
IC304-⑮ 3.5Vp-p
IC304-⑭ 3.5Vp-p
IC304-⑬ 3.5Vp-p
IC304-⑫ 3.5Vp-p
STOP (H•RATE) RAMP GENERATOR
6
7
8
9
10
11



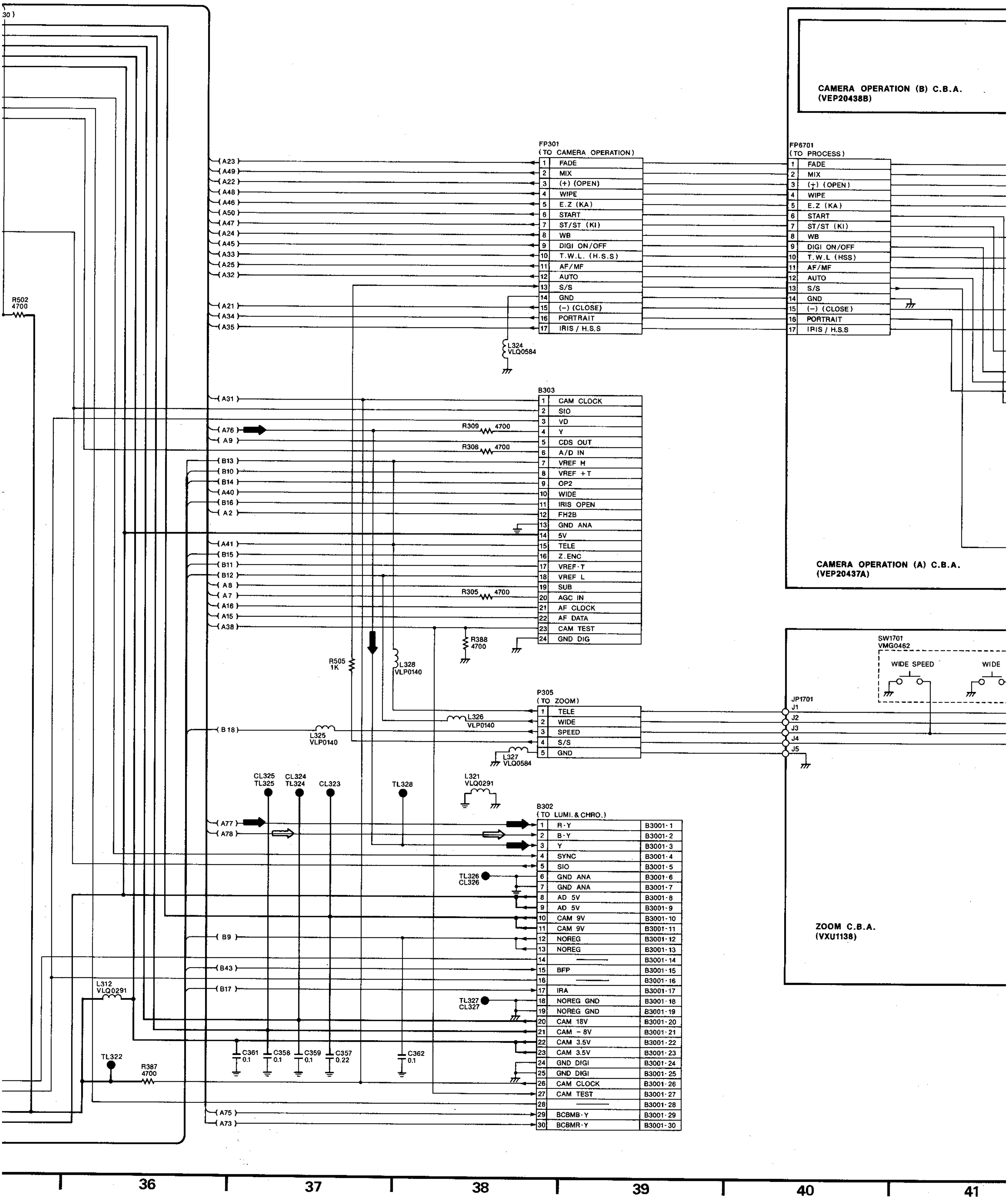
ɪNAL
Y SIGNAL
R-Y SIGNAL
B-Y SIGNAL
CAM 9V
CAM -8V
CAM 18V
CAM 3.5V
CAM 5V
IC312
MN1882010V4P
(µCOM:DIS)
IC315
MN657011
(D/A CONVERTER)
IC315-㉗ STOP
0.5Vp-p (H·RATE)
COLOUR BAR
IC315-㉘ STOP
0.5Vp-p (H·RATE)
GRAY SCALE
IC330
M62352GP
IC308
MN73512XWAS
(SSG)
IC304
MN6733
(ZOOM)
IC303
ZA4030
C-IN (8 bit)
Y-IN (8 bit)
L305 15µ
C305 6V10
C321 6V10
R311 56
L313 6.8µ
R319 5600
C324 0.1
R318 4700
L312 VLQ0291
L309 6.8µ
TL322
TL301
CL302
R493 470
R347 100
R346 100
R345 100
C335 6V10
C314 6V10
R335 1K
3.5 V
12
13
14
15
16
17

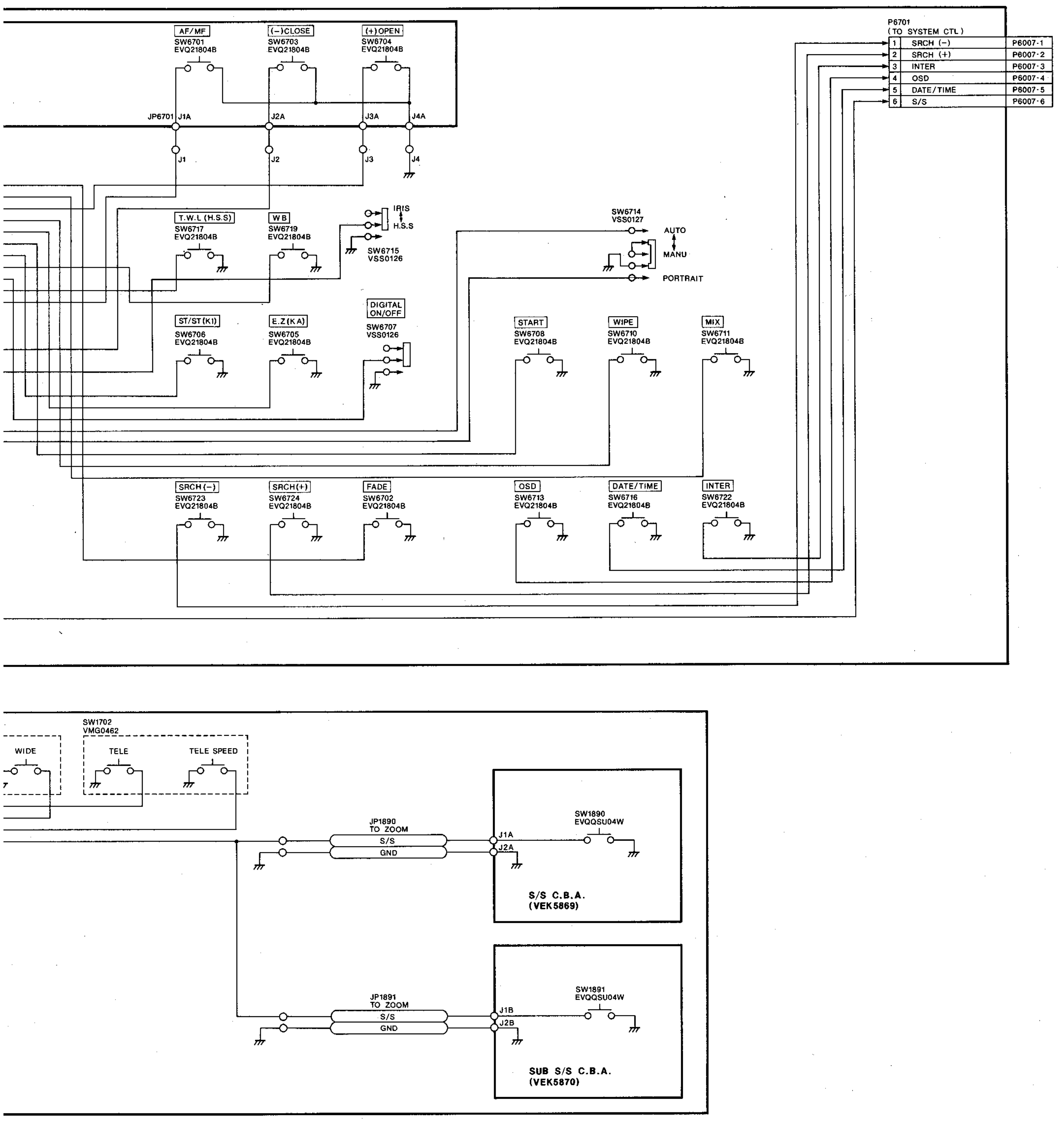

A · LINE
I · LINE
3.5 V
G · LINE
H · LINE
J · LINE
B · LINE
(A6) (A74) (A76) (A1)
L320 33µ
L314 6.8µ
L308 6.8µ
L307 6.8µ
L304 100µ
L303 100µ
L302 100µ
⑨ STOP
p (H·RATE)
JR BAR
IC317
AN2040SB
(L.P.F.)
Y GAIN
VCD
OUT
SYNC
SYNC LEV
CP2
IN
V REF
Y IN
GND
R IN
B IN
VCC
B OUT
R OUT
OUT
A70
A71
A72
A78
A77
B42
B45
B44
C342 0.1
C341 0.1
C334 4V10
C326 0.1
C325 6V10
IC317-④
3.3Vp-p (20µsec./div.)
C317 0.1
IC307
MN655431SH
(A/D CONVERTER)
DE
D VSS
IN0
IN1
IN2
IN3
IN4
IN5
IN6
IN7
D VDD
AF CLK
D VSS
VRB
VRBS
A VSS
A VSS
IN
A VDD
VRT
VRTS
A VDD
A VDD
D VDD
C307 6V10
B33 R350 1K
B32 R349 1K
B31 R348 1K
B30 R342 1K
B29 R326 1K
B28 R325 1K
B27 R324 1K
B26 R323 1K
IC307-⑲ STOP
2.2Vp-p (H·RATE)
RAMP GENERATOR
C383 68P
C381 1
W324
R398 180
L322 5.6µ
C380 1
C308 6V10
A4
A3
A5
IC307-⑫
4.6Vp-p (1µsec./div.)
C6
C2
A12
A11
A10
A75
C4
IC302
ZA4030
RSTW
WAERAE
WAD
POR
Y M0
Y M1
Y M2
Y M3
RSTR
WAERAE
RAD
OE
Y FM0
Y FM1
Y FM2
Y FM3
C303 6V10
C302 6V10
J7 J3 J2 J1 J6 J5 J4
B54 B55 B56 B57
C349 33P C350 33P C351 33P C352 33P
R486 1K H1
R487 1K H2
R488 1K H3
R489 1K H4
R482 1K G4
R483 1K G3
R484 1K G2
R485 1K G1
IC301
MN4791S
RSTW
WAERAE
WAD
POR
Y M4
Y M5
Y M6
Y M7
RSTR
WAERAE
RAD
OE
Y FM4
Y FM5
Y FM6
Y FM7
C301 6V10
B58 B59 B60 B61
C345 33P C346 33P C347 33P C348 33P
R413 1K H5
R412 1K H6
R411 1K H7
R410 1K H8
Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ Ⓕ Ⓖ Ⓗ Ⓘ Ⓙ Ⓚ Ⓛ Ⓝ Ⓜ Ⓟ Ⓠ Ⓡ Ⓢ Ⓣ Ⓤ Ⓦ Ⓧ Ⓨ Ⓩ ⓐ
18
19
20
21
22
23


A-LINE
H-LINE
J-LINE
B-LINE
(A44)
(A43)
(A42)
(B74)
(B35)
IC316
MN5185
(MEMORY CONT)
IC319
TC7S32F
IC305
TC7S04F
IC318
TC7S08F
IC320
TC7S32F
(WIPE)
L317
6.8μ
C332
6V10
R304
270
R504 100
CL321
TL321
L315
VLQ0291
3.5 V
AD5V
G4 G3 G2 G1 I 7 I 8 I 9 I10 I11 I12 I13 I14
I 1 I 2 I 3 I 4
C FM1
C FM2
C FM3
C FM4
MD0
MD1
MD2
MD3
MD4
MD5
MD6
MD7
WE
VDD
BACKUP PH
VSS
MA0
MA1
MA2
MA3
MEMORY·C
DATA
ADDRESS
Y FM7
Y FM6
Y FM5
Y FM4
Y FM3
Y FM2
Y FM1
Y FM0
FMDEO
CRSTW
RSTW
RSTR
WAD
RAD
OE
WAERAE
POR
HD
HCLR
VD
CLK
ZO7
ZO6
ZO5
ZO4
ZO3
ZO2
ZO1
ZO0
ZOOM·Y IN
ZOOM·C IN
CO7
CO6
CO5
CO4
CO3
CO2
CO1
CO0
VCNTL
UVSEL
G CONT
T4
T3
NRESER
VDD
N/P
VSS
BACK
T2
T1
STOP
H8 H7 H6 H5 H4 H3 H2 H1
J7 J6 J2 J5 J4 J3 J1
B64 B65 B66 B67 B68 B69 B70 B71
B72 B73 B53 B52 B51 B50 B49 B48 B63 B62 B6
A B C D E F G H I J K L
N M P Q R S T U
W X Y Z a
24
25
26
27
28
29



(A68)(A67)(A66)(A65)(A64)(A63)(A62)(A61)
(A52)
(A79)
(A29)
(A30)
AD 5V
(13)(14)(15)(16)
R465 1K
R466 1K
R468 1K
R469 1K
R470 1K
R471 1K
R472 1K
R473 1K
2.5
3.3
2.4
2.4
1.2
3.5
MA2
MA3
CS1
CS2
C OUT0
C OUT1
C OUT2
C OUT3
C OUT4
C OUT5
C OUT6
C OUT7
RESS
CHIP SELECT
C-OUT
CL303
IC311
MN13821-Y
RESET
C318
1
C309
1000P
C360
0.1
R500
4700
QR301
UN5213
47K
47K
4.6
0
D302
MA728
R502
4700
Y OUT0
Y OUT1
Y OUT2
Y OUT3
Y OUT4
Y OUT5
Y OUT6
Y OUT7
Y-OUT
R474 1K (A60)
R475 1K (A59)
R476 1K (A58)
R477 1K (A57)
R478 1K (A56)
R479 1K (A55)
R480 1K (A54)
R481 1K (A53)
DAOVSEL
1.5
R501 1K (A69)
HD 1.9Vp-p
IC316-㉔ 3.5Vp-p
IC316-㉕ 3.5Vp-p
IC316-㉖ 3.5Vp-p
IC316-㉗ 3.5Vp-p
STOP (H-RATE) RAMP GENERATOR
SA12
SA11
SA10
SA9
SA8
SA7
SA6
SA5
SA4
SA3
SA2
SA1
SA0
SD8
SD7
SD6
SD5
SD4
SD3
SD2
SD1
T2
T1
CHRBACK
CHR
WIPE1
WIPE0
SOE
CS2A
CS2B
SWE
CH0
CH1
0.9
3.5
3.5
0
0
3.5
3.5 V
30
31
32
33
34
35

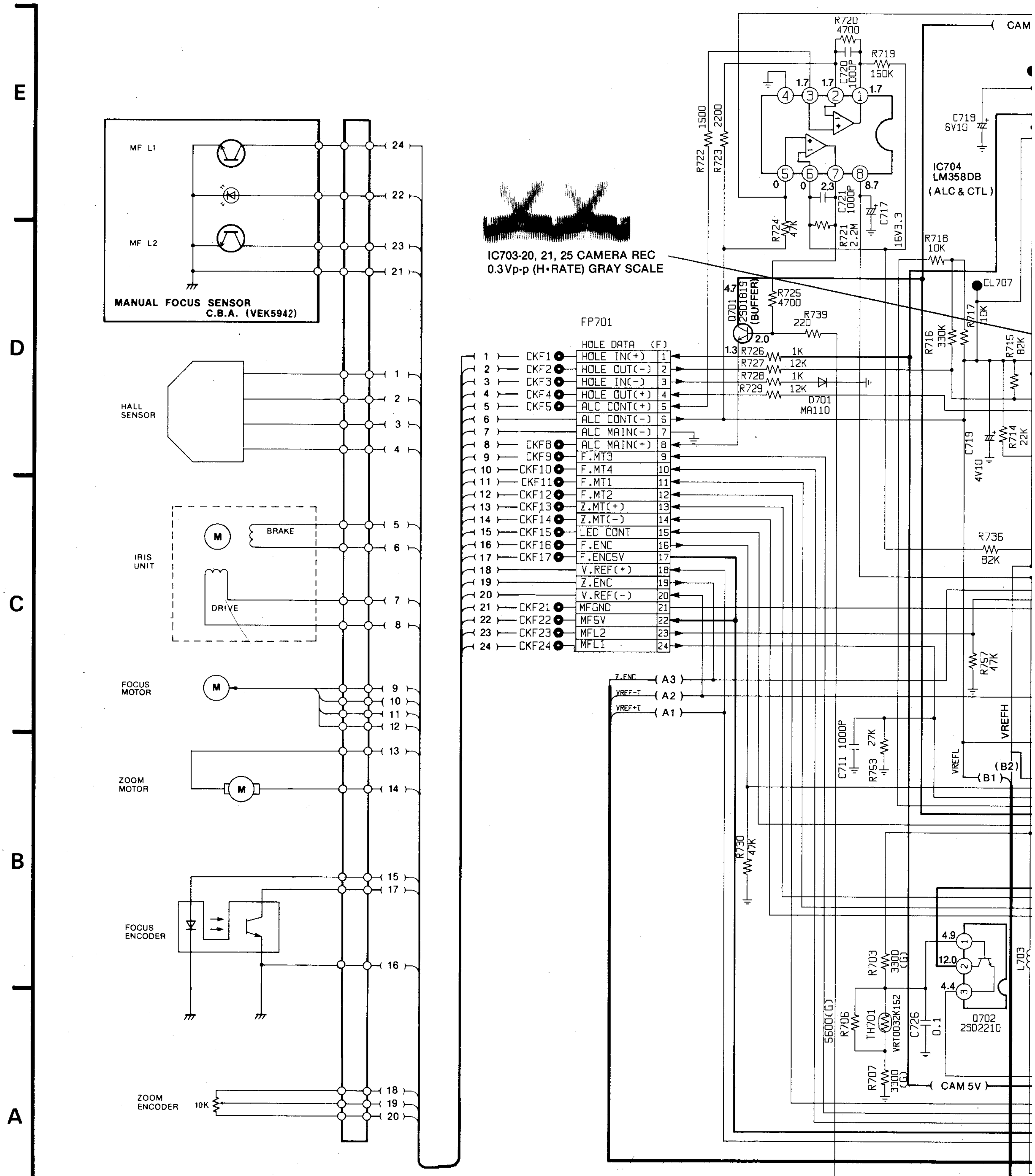

30)
CAMERA OPERATION (B) C.B.A.
(VEP20438B)
FP301
(TO CAMERA OPERATION)
1 FADE
2 MIX
3 (+) (OPEN)
4 WIPE
5 E.Z (KA)
6 START
7 ST/ST (KI)
8 WB
9 DIGI ON/OFF
10 T.W.L. (H.S.S)
11 AF/MF
12 AUTO
13 S/S
14 GND
15 (−) (CLOSE)
16 PORTRAIT
17 IRIS / H.S.S
A23
A49
A22
A48
A46
A50
A47
A24
A45
A33
A25
A32
A21
A34
A35
R502
4700
L324
VLQ0584
FP6701
(TO PROCESS)
1 FADE
2 MIX
3 (+) (OPEN)
4 WIPE
5 E.Z (KA)
6 START
7 ST/ST (KI)
8 WB
9 DIGI ON/OFF
10 T.W.L (HSS)
11 AF/MF
12 AUTO
13 S/S
14 GND
15 (−) (CLOSE)
16 PORTRAIT
17 IRIS / H.S.S
B303
1 CAM CLOCK
2 SIO
3 VD
4 Y
5 CDS OUT
6 A/D IN
7 VREF H
8 VREF +T
9 OP2
10 WIDE
11 IRIS OPEN
12 FH2B
13 GND ANA
14 5V
15 TELE
16 Z.ENC
17 VREF·T
18 VREF L
19 SUB
20 AGC IN
21 AF CLOCK
22 AF DATA
23 CAM TEST
24 GND DIG
A31
A76
A9
B13
B10
B14
A40
B16
A2
A41
B15
B11
B12
A8
A7
A16
A15
A38
R309 4700
R308 4700
R305 4700
R388
4700
R505
1K
L328
VLP0140
CAMERA OPERATION (A) C.B.A.
(VEP20437A)
SW1701
VMG0462
WIDE SPEED
WIDE
P305
(TO ZOOM)
1 TELE
2 WIDE
3 SPEED
4 S/S
5 GND
JP1701
J1
J2
J3
J4
J5
B18
L325
VLP0140
L326
VLP0140
L327
VLQ0584
CL325
TL325
CL324
TL324
CL323
TL328
L321
VLQ0291
B302
(TO LUMI. & CHRO.)
1 R-Y B3001-1
2 B-Y B3001-2
3 Y B3001-3
4 SYNC B3001-4
5 SIO B3001-5
6 GND ANA B3001-6
7 GND ANA B3001-7
8 AD 5V B3001-8
9 AD 5V B3001-9
10 CAM 9V B3001-10
11 CAM 9V B3001-11
12 NOREG B3001-12
13 NOREG B3001-13
14 B3001-14
15 BFP B3001-15
16 B3001-16
17 IRA B3001-17
18 NOREG GND B3001-18
19 NOREG GND B3001-19
20 CAM 18V B3001-20
21 CAM −8V B3001-21
22 CAM 3.5V B3001-22
23 CAM 3.5V B3001-23
24 GND DIGI B3001-24
25 GND DIGI B3001-25
26 CAM CLOCK B3001-26
27 CAM TEST B3001-27
28 B3001-28
29 BCBMB-Y B3001-29
30 BCBMR-Y B3001-30
A77
A78
TL326
CL326
TL327
CL327
B9
B43
B17
A75
A73
L312
VLQ0291
TL322
R387
4700
C361 0.1
C358 0.1
C359 0.1
C357 0.22
C362 0.1
ZOOM C.B.A.
(VXU1138)
36
37
38
39
40
41



NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE WITH AIM THE CAMERA AT THE LOGARITHMIC GRAY SCALE CHART.

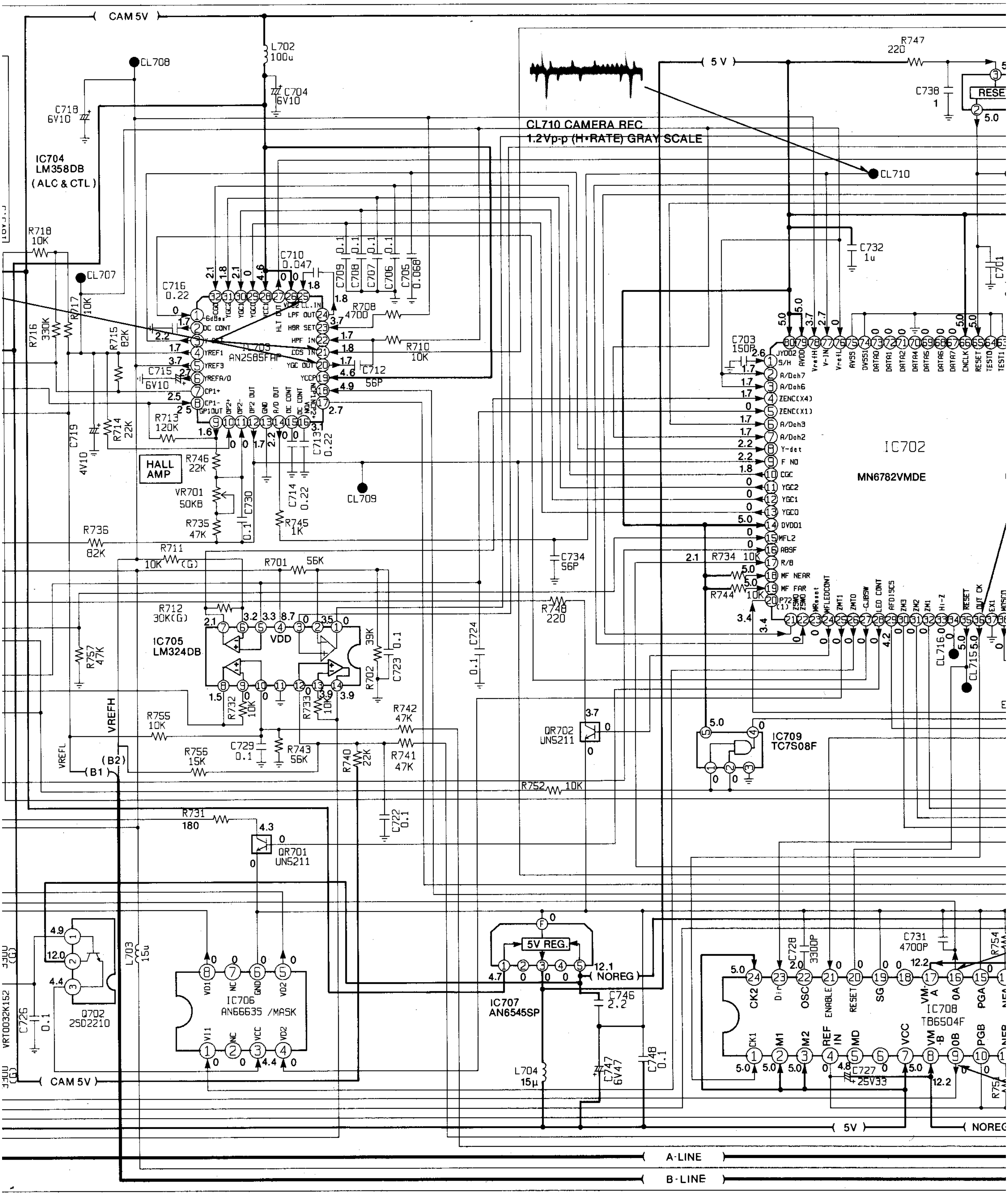
3-11. AUTO FOCUS SCHEMATIC DIAGRAM



NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM WITH AIM THE CAMERA AT THE LOGARITHMIC GRAY SCALE GHAR

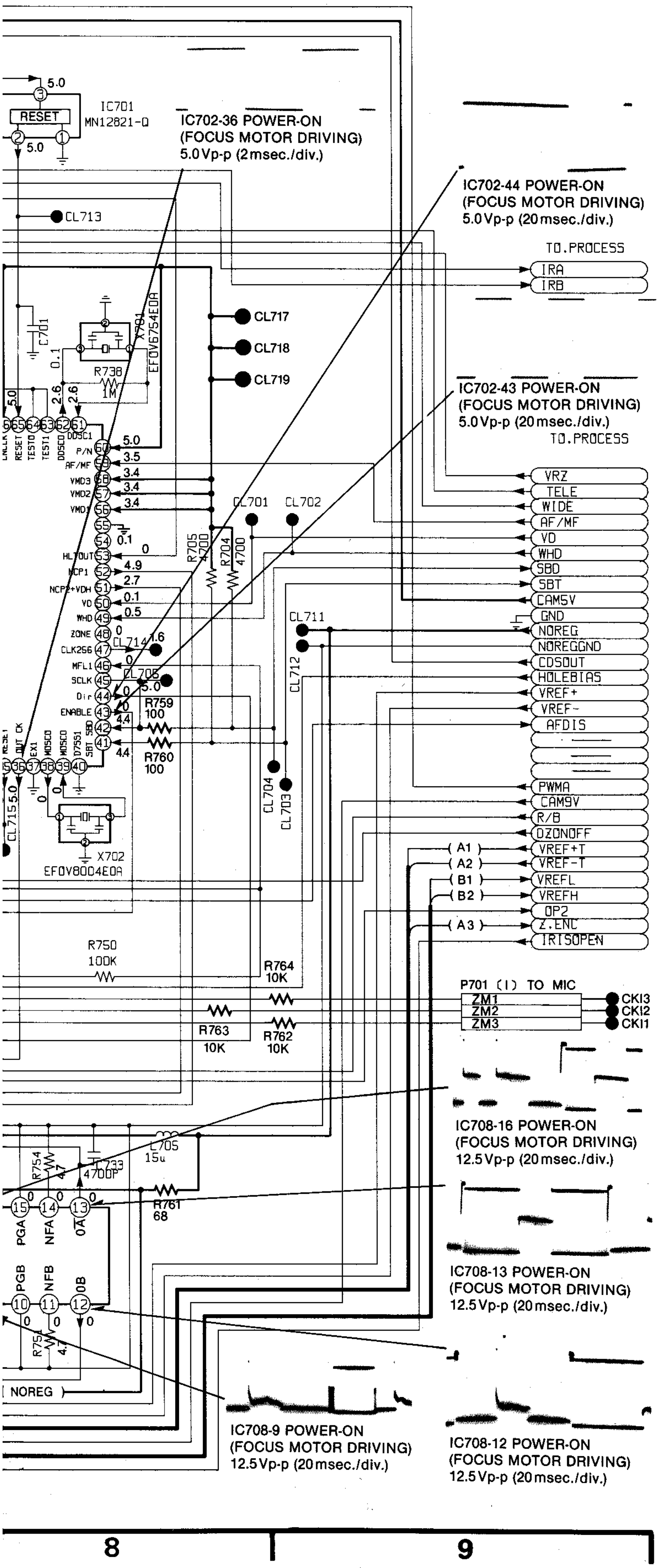
1 2 3 4



GE ON THIS DIAGRAM IS STOP MODE

GRAY SCALE GHART.

4 5 6 7



IC702-36 POWER-ON
(FOCUS MOTOR DRIVING)
5.0Vp-p (2msec./div.)

IC702-44 POWER-ON
(FOCUS MOTOR DRIVING)
5.0Vp-p (20msec./div.)

IC702-43 POWER-ON
(FOCUS MOTOR DRIVING)
5.0Vp-p (20msec./div.)

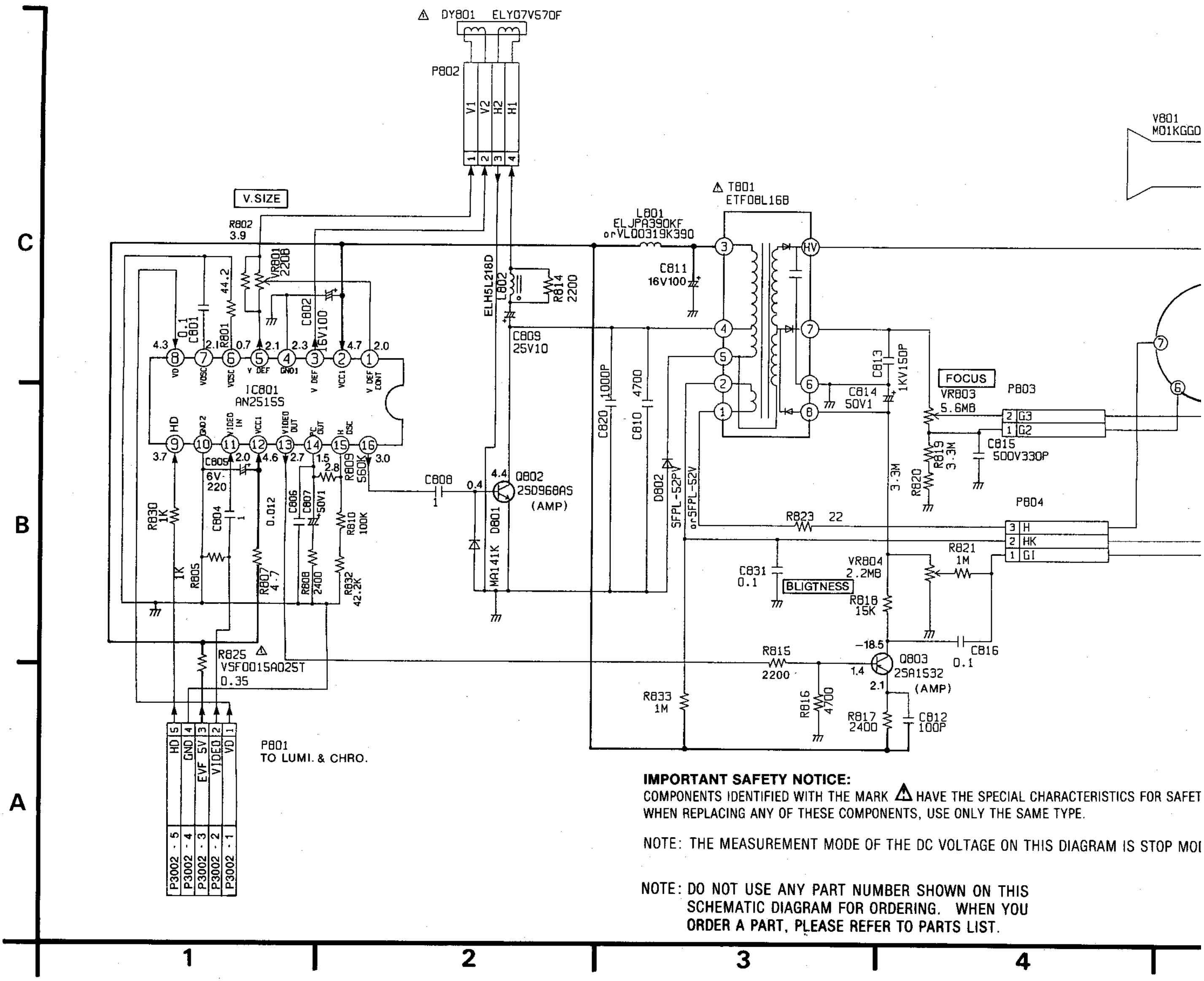
IC708-16 POWER-ON
(FOCUS MOTOR DRIVING)
12.5Vp-p (20msec./div.)

IC708-13 POWER-ON
(FOCUS MOTOR DRIVING)
12.5Vp-p (20msec./div.)

IC708-9 POWER-ON
(FOCUS MOTOR DRIVING)
12.5Vp-p (20msec./div.)

IC708-12 POWER-ON
(FOCUS MOTOR DRIVING)
12.5Vp-p (20msec./div.)

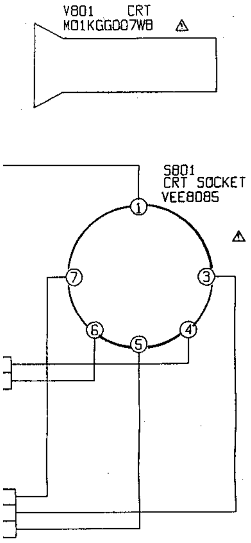
3-14. EVF SCHEMATIC DIAGRAM



IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFET
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MO

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

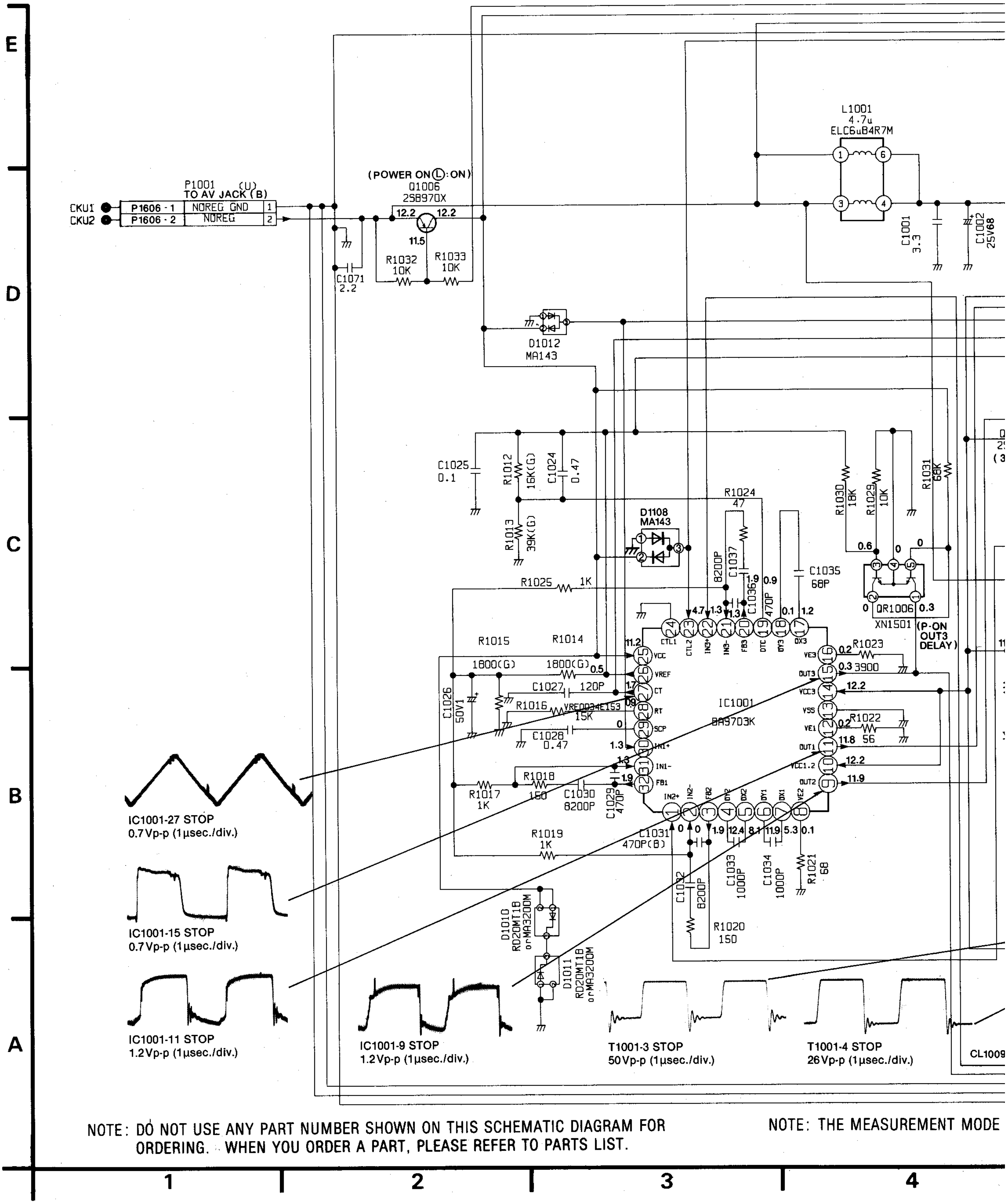


ISTICS FOR SAFETY.

AM IS STOP MODE.

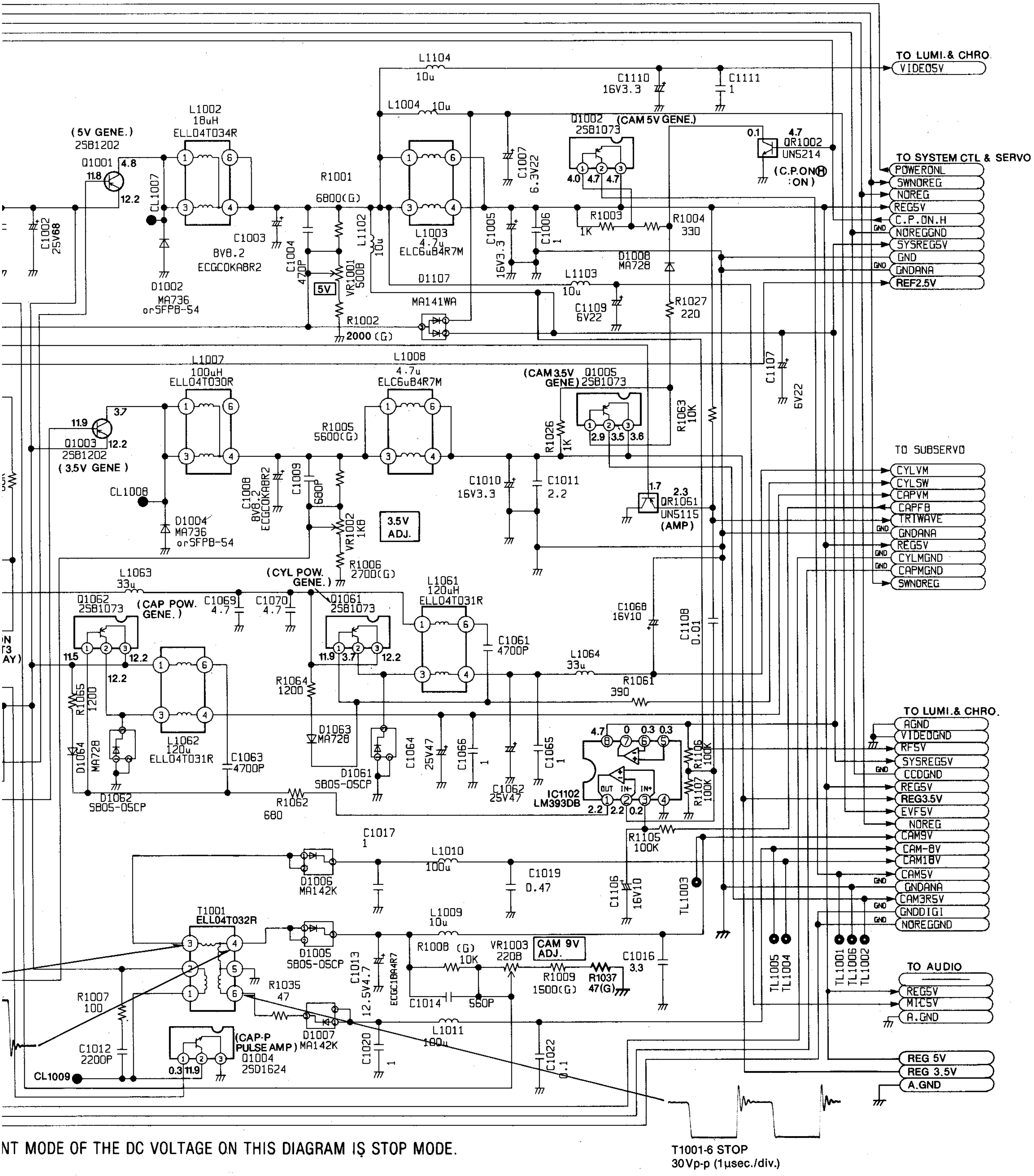
5

3-16. POWER SCHEMATIC DIAGRAM



NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

NOTE: THE MEASUREMENT MODE



NT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IŞ STOP MODE.

SYSTEM CONTROL & SERVO ICs DC VOLTAGE CHART

REF. NO.	IC6001																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
STOP	0	0	0	0	0	0	0	0	12.2	12.2	0	0	0	0	0	0	0	0	0	0
REC/PLAY	0	0	0	0	0	0	0	0	12.1	12.1	0	0	0	0	0	0.1	0	0	0	0
F.F	0	0	0	0	0	0	0	0	12.0	12.1	0	0	0	0	0	0	0	0	0	0
REF. NO.	IC6001																			
MODE	21	22	23	24																
STOP	0	0	0	0																
REC/PLAY	0	0	0.1	0																
F.F	0	0	0	0																
REF. NO.	IC6002																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16				
STOP	4.6	0.1	4.7	4.7	4.7	1.7	1.7	0	0	0	0	0.1	0	0	4.3	3.8				
REC/PLAY	4.7	0.1	4.7	4.7	4.7	1.7	1.7	0	0	0	0	0	0	0	4.3	3.7				
F.F	4.7	0.1	4.7	4.7	4.7	1.7	1.7	0	0	0	0	0	0	0	4.3	3.8				
REF. NO.	IC6003																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14						
STOP	0	0.8	0	0	0.5	0.8	0	1.8	1.8	4.7	0	0	0	1.8						
REC/PLAY	0	0.8	0	0	0.5	0.8	0	1.8	1.8	4.7	0	0	0	1.8						
F.F	0	0.8	0	0	0.5	0.8	0	1.8	1.8	4.7	0	0	0	1.8						
REF. NO.	IC6004																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
STOP	4.7	4.7	4.7	4.7	4.7	4.6	4.7	4.7	0	4.7	0	4.7	4.7	4.7	4.7	4.7	0	0	0	0
REC/PLAY	4.7	4.7	4.7	4.6	4.7	4.6	4.7	4.7	0	0	0	4.7	4.7	4.7	4.7	—	4.7	4.7	4.7	4.2
F.F	4.7	4.6	4.7	4.7	4.7	4.6	4.7	4.7	0	4.7	0	4.7	4.7	3.5	4.7	0	0	0	0	0
REF. NO.	IC6004																			
MODE	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
STOP	0	0	1.9	0	4.7	0	0	4.7	0.8	0	0	0	0.1	4.7	0	0	0	—	—	0
REC/PLAY	0	0	1.9	0	4.7	0	0	4.7	0.8	0	0	0	0.1	4.7	0	0	0	—	—	0
F.F	0	0	1.9	0	4.7	0	0	4.7	0.8	0	0	0	0.1	4.7	0	0	0	0.1	4.7	0
REF. NO.	IC6004																			
MODE	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
STOP	2.1	0.8	1.0	0	0	0.8	4.7	—	—	4.7	0	4.3	4.6	4.5	4.7	4.7	4.7	2.3	4.6	4.7
REC/PLAY	0	2.1	1.0	0	0	0.8	4.7	—	0.3	—	—	4.4	4.5	4.5	4.7	4.7	4.7	0	4.6	4.7
F.F	0	0.8	1.0	0	0	0.8	4.7	4.7	0	4.7	0	4.4	4.6	4.4	4.7	4.7	4.6	0	4.6	4.7
REF. NO.	IC6004																			
MODE	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
STOP	0	0	4.7	0	4.7	0	0	4.7	2.3	0	4.7	0	0	0	2.4	2.4	2.3	0	2.4	2.4
REC/PLAY	0	0	—	0	—	0	0	4.7	2.3	0	1.3	0	0	0	2.4	2.3	2.3	0	2.4	2.4
F.F	0	0	4.7	0	4.7	0	0	4.7	2.3	0	4.7	0	0	0	2.4	2.4	2.3	0	2.4	2.4
REF. NO.	IC6001																			
MODE	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
STOP	2.1	2.6	4.7	0	0	0	2.4	2.4	0	0	2.4	0	0	4.1	4.7	0	4.7	4.7	4.7	4.7
REC/PLAY	2.1	2.6	4.7	—	—	0	2.4	2.3	0	0	2.4	0	2.1	2.3	4.7	0	4.6	4.7	4.7	4.6
F.F	2.1	2.6	4.7	0	0	0	2.4	2.4	0	0	2.4	0	1.9	4.1	4.7	0	4.7	4.7	4.7	4.6
REF. NO.	IC6004																			
MODE	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120
STOP	4.6	2.9	0	0	4.7	4.7	3.7	2.5	4.3	0	0	0	4.7	4.7	4.5	4.7	4.7	4.7	4.7	4.7
REC/PLAY	4.6	2.9	0	0	4.7	4.7	—	2.5	4.6	—	0	0	4.7	4.7	4.6	4.6	4.7	4.7	4.7	4.7
F.F	4.6	2.9	0	0	4.7	4.7	—	2.5	4.3	0	0	0	4.7	4.7	4.6	4.6	4.7	4.7	4.7	4.7
REF. NO.	IC6004																			
MODE	121	122	123	124	125	126	127	128												
STOP	4.7	4.7	4.7	0	0	4.7	4.7	0												
REC/PLAY	4.7	0	0	0	0	4.7	4.7	0												
F.F	4.7	4.7	4.7	0	0	4.7	4.7	0												
REF. NO.	IC6005																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14						
STOP	0	4.7	4.7	4.7	4.7	4.7	0	0.5	4.7	4.7	4.7	4.7	0	4.7						
REC/PLAY	0	4.7	4.7	4.7	4.7	4.7	0	0.5	4.7	4.7	4.7	4.7	0	4.7						
F.F	0	4.7	4.7	4.7	4.7	4.7	0	0.5	4.6	4.7	4.6	4.6	0	4.7						
REF. NO.	IC6006																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14						
STOP	4.7	4.7	4.7	4.7	4.7	4.7	0	0	4.7	4.7	4.7	4.7	4.7	4.7						
REC/PLAY	4.7	4.7	4.7	4.7	4.7	4.7	0	0	4.7	4.7	4.7	4.7	4.7	4.7						
F.F	4.7	4.7	4.7	4.7	4.7	4.7	0	0	4.7	4.7	4.7	4.7	4.7	4.7						
REF. NO.	IC607																			
MODE	1	2	3	4	5															
STOP	4.3	4.6	0	0.8	4.7															
REC/PLAY	4.3	4.6	0	0.8	4.7															
F.F	4.4	4.6	0	0.8	4.7															
REF. NO.	IC6008																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14						
STOP	4.7	4.7	4.7	4.7	4.7	4.7	0	4.7	4.7	4.7	4.7	4.7	4.7	4.7						
REC/PLAY	4.7	4.7	4.7	4.7	4.7	4.7	0	4.7	4.7	4.7	4.7	4.7	4.7	4.7						
F.F	4.7	4.6	4.7	4.7	4.6	4.7	0	4.7	4.7	4.7	4.7	4.7	4.7	4.7						

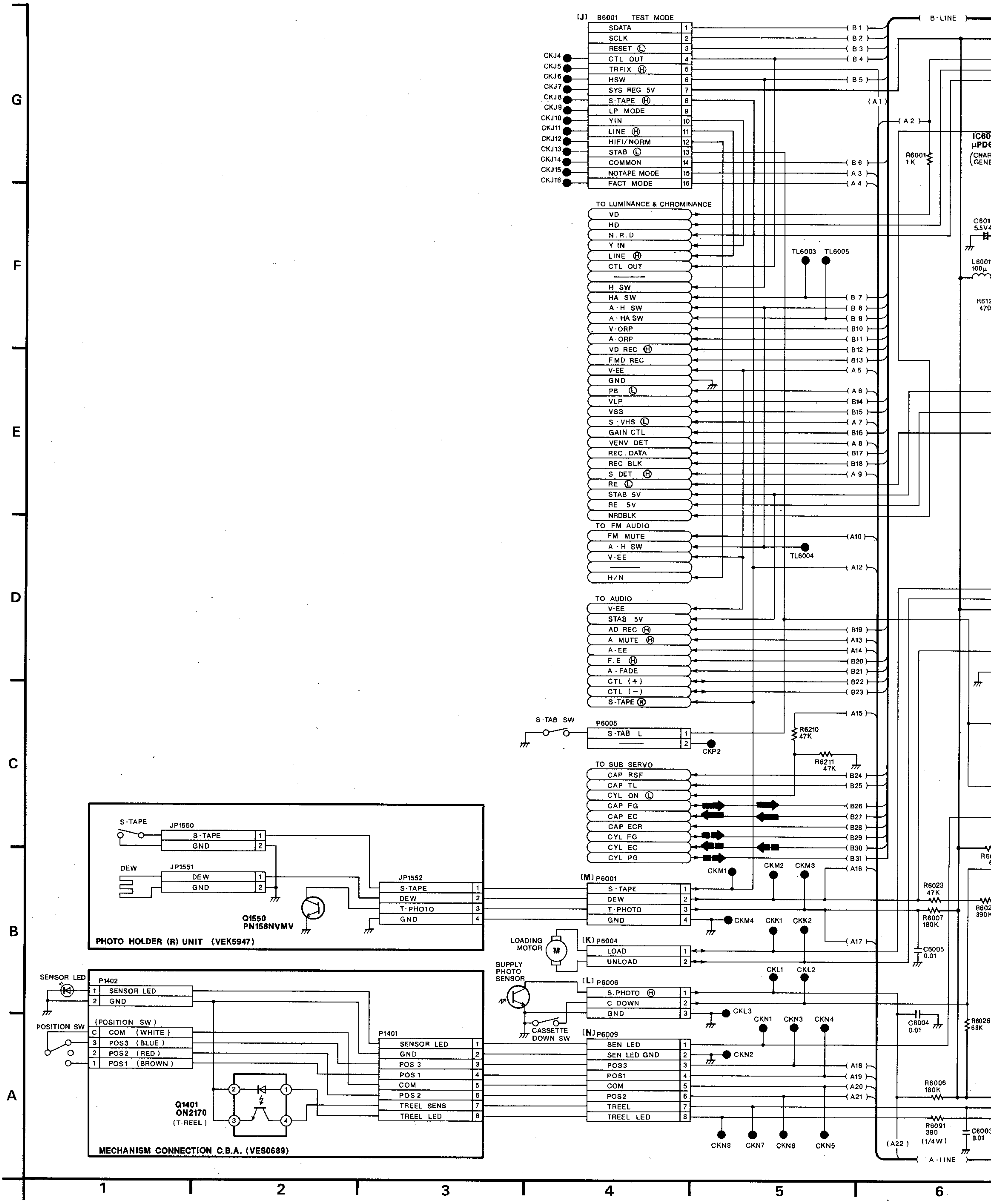
SYSTEM CONTROL & SERVO ICs DC VOLTAGE CHART

REF. NO.	IC6009										IC6010									
MODE	1	2	3								1	2	3							
STOP	0	4.7	4.7								5.0	0	12.2							
REC/PLAY	0	4.7	4.7								5.0	0	12.1							
F.F	0	4.7	4.7								5.0	0	12.1							
REF. NO.	IC6011																			
MODE	1	2	3	4	5															
STOP	4.7	4.5	0	4.5	4.7															
REC/PLAY	4.7	4.6	0	4.6	4.7															
F.F	4.6	4.6	0	4.7	4.7															

SYSTEM CONTROL & SERVO TRANSISTORs DC VOLTAGE CHART

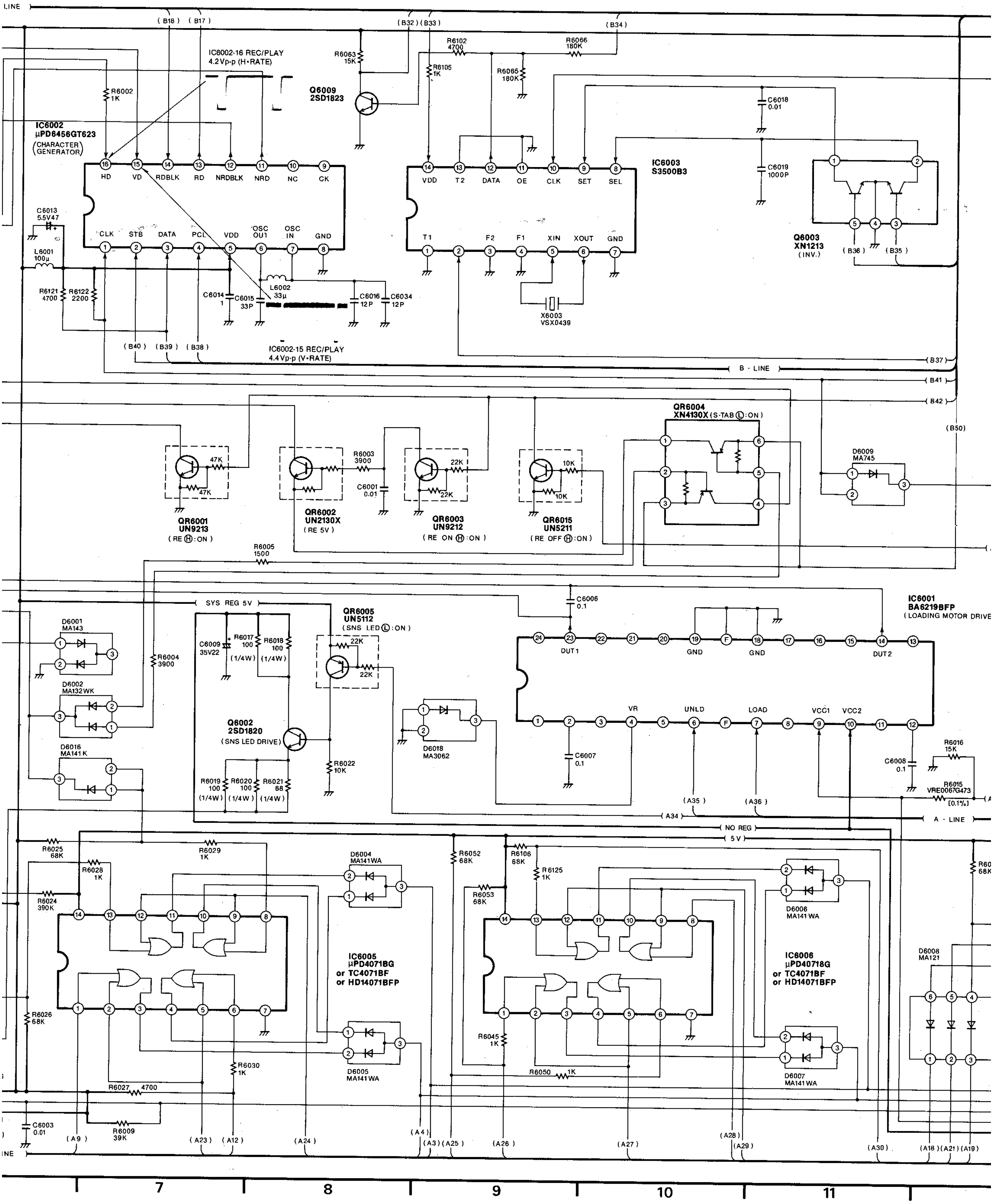
REF. NO.	Q6002			Q6003						Q6004			Q6005			Q6006		
MODE	E	C	B	1	2	3	4	5		E	C	B	E	C	B	E	C	B
STOP	0	12.2	0	1.8	1.8	0	0	0		4.7	4.7	4.0	0	0.1	0.7	0	4.6	0.1
REC/PLAY	0	12.1	0	1.8	1.8	0	0	0		4.7	4.7	4.0	0	0.1	0.7	0	4.7	0.1
F.F	1.6	10.9	1.6	1.8	1.8	0	0	0		4.7	4.7	4.0	0	0.1	0.7	0	4.6	0.1
REF. NO.	Q6007			Q6008			Q6009			Q6010			Q6012					
MODE	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B
STOP	4.7	0	4.7	3.1	0	0	0	4.9	0	9.8	12.2	10.4	0	4.6	0			
REC/PLAY	4.7	0	4.7	3.1	3.9	0	0	4.7	0.1	9.8	12.0	10.2	0	4.6	0			
F.F	4.7	0	4.7	3.1	4.0	0	0	4.8	0	9.7	12.0	10.2	0	4.6	0			
REF. NO.	QR6001			QR6002			QR6003			QR6004						QR6005		
MODE	E	C	B	E	C	B	E	C	B	1	2	3	4	5	6	E	C	B
STOP	0	0.1	0	4.7	0.1	4.7	0	0	0	4.7	4.0	4.7	4.7	4.1	4.7	4.7	0	4.7
REC/PLAY	0	0	4.4	4.7	1.6	4.7	0	4.7	0.1	4.7	0	4.7	4.6	4.0	4.7	4.7	0	4.7
F.F	0	0	0	4.7	0.1	4.7	0	4.7	0	4.7	4.0	4.7	4.7	4.1	4.7	4.7	1.6	3.8
REF. NO.	QR6006			QR6007			QR6008			QR6010			QR6011			QR6012		
MODE	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B
STOP	0	0	0	0	0.1	4.5	0	0.1	4.7	4.7	4.6	0	4.7	0	4.7	4.7	0	4.7
REC/PLAY	0	4.7	0	0	0.1	4.3	0	0.1	4.7	4.7	4.6	0	4.7	0	0	4.7	4.7	0
F.F	0	4.7	0	0	0.1	4.3	0	0.1	4.7	4.7	4.6	0	4.7	0	4.7	4.7	0	4.7
REF. NO.	QR6013			QR6014			QR6015			QR6016			QR6017			QR6018		
MODE	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B
STOP	0	0	12.6	0	0	0	0	0	0	0	0	0	0	0	4.5	0	0	2.1
REC/PLAY	0	0	12.5	0	0	4.7	0	0	4.7	0	0	0	0	0	4.5	0	0	2.1
F.F	0	0	12.4	0	0	0	0	0	0	0	0	0	0	0	4.5	0	0	2.1

3-17. SYSTEM CONTROL & SERVO SCHEMATIC DIAGRAM



CAPSTAN SERVO SPEED LOOP

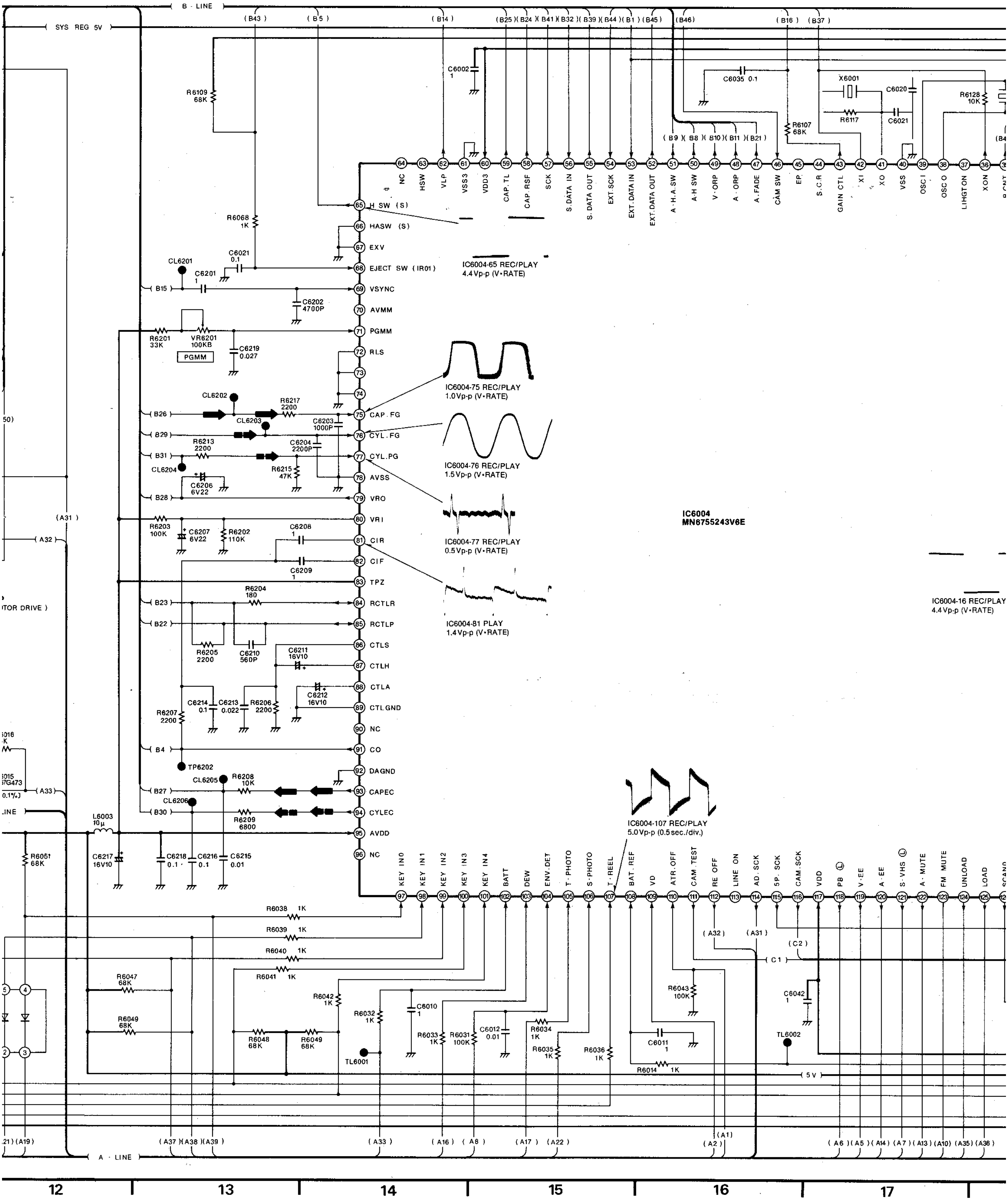
CAPSTAN SERVO



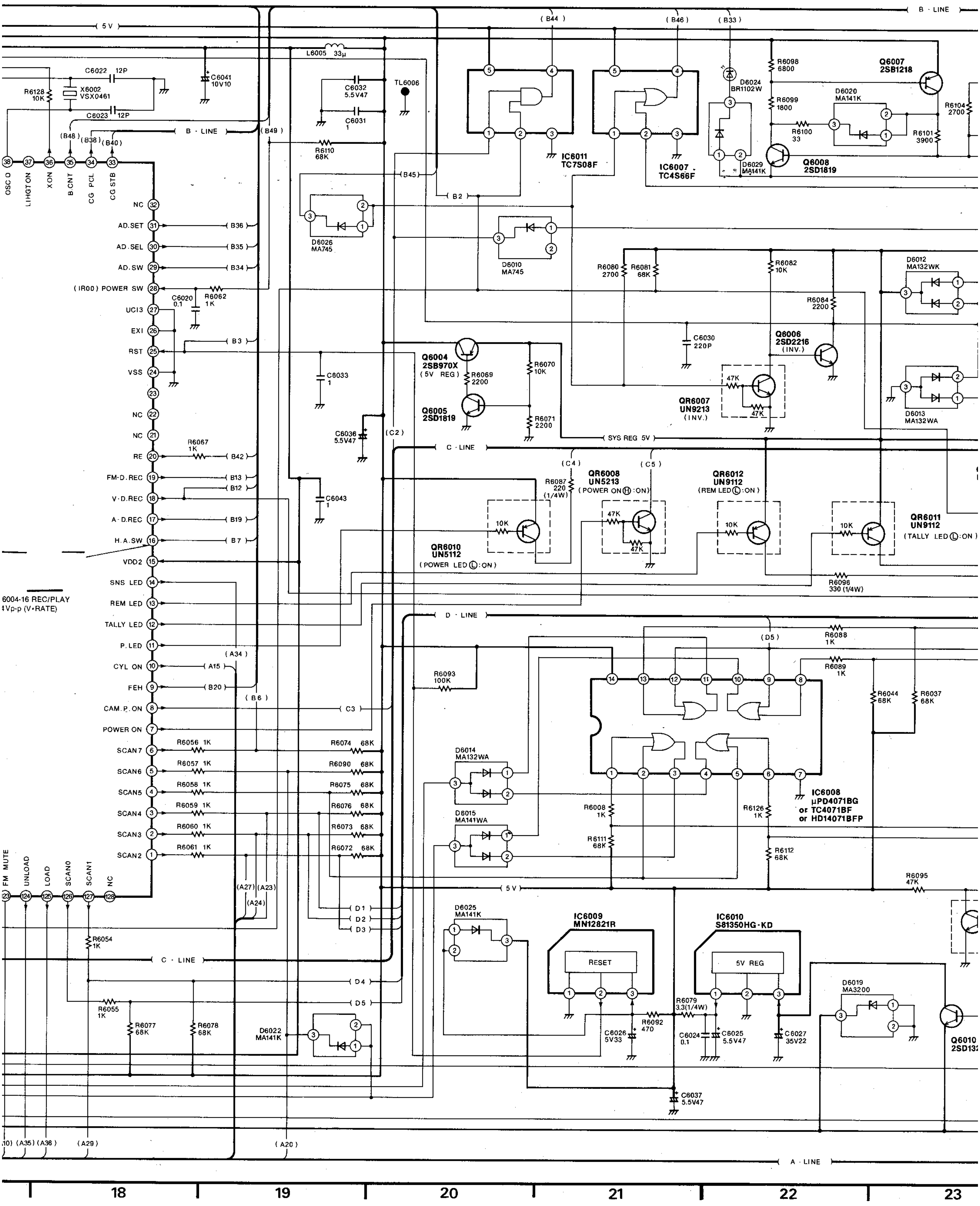
VO PHASE LOOP

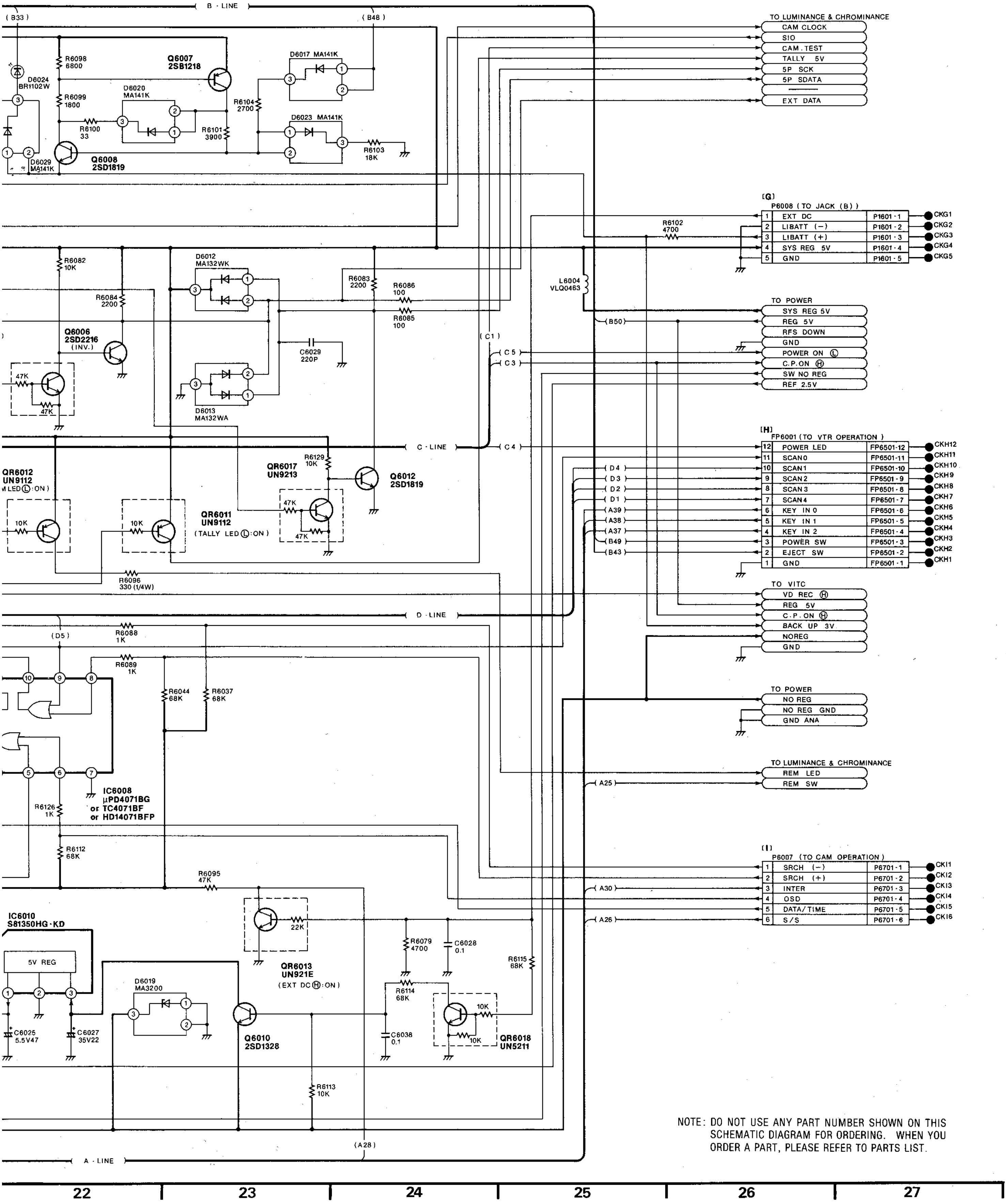
CYLINDER SERVO SPEED LOOP

CYL



CYLINDER SERVO PHASE LOOP

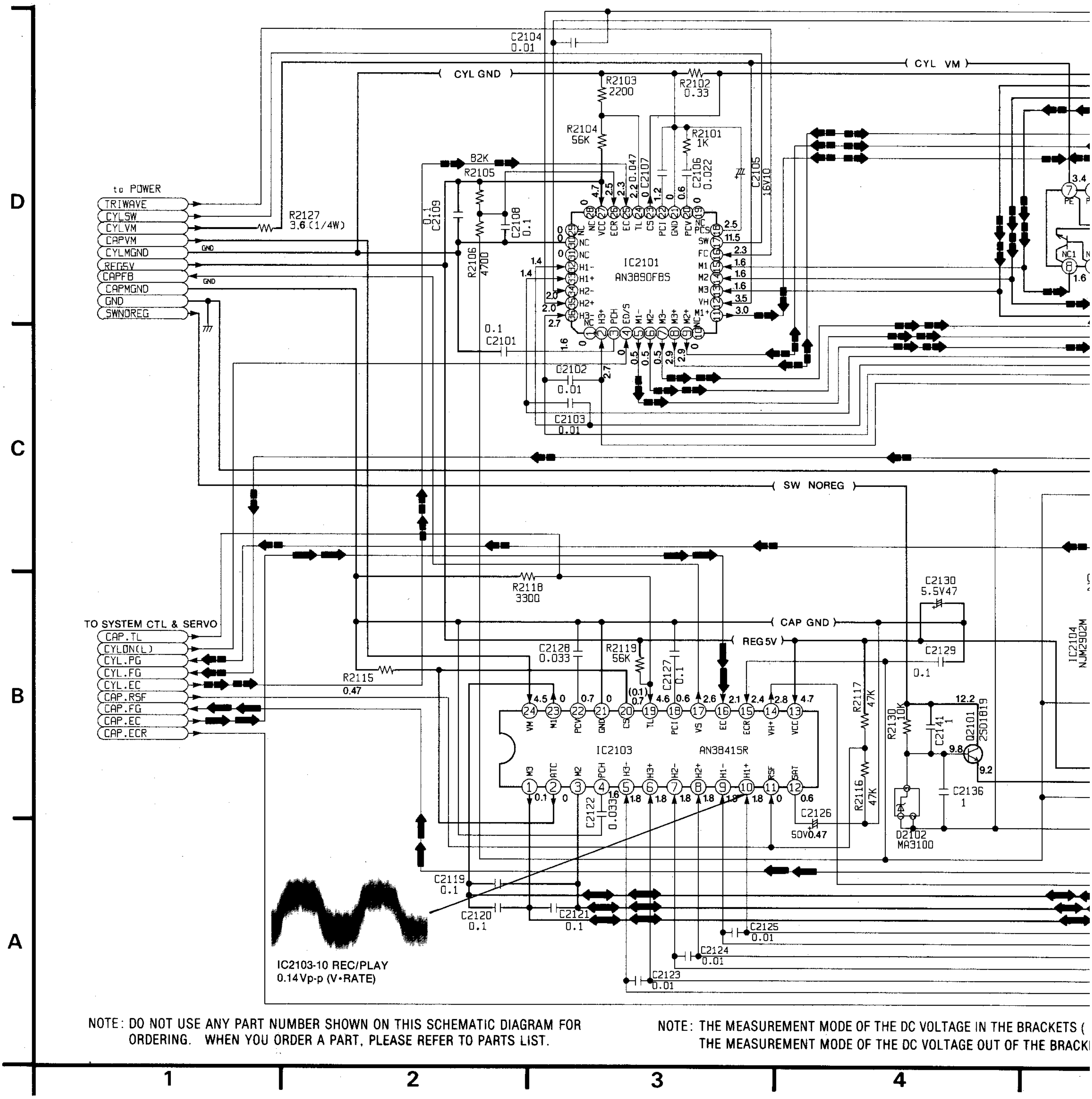




NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

3-18. SUB SERVO SCHEMATIC DIAGRAM

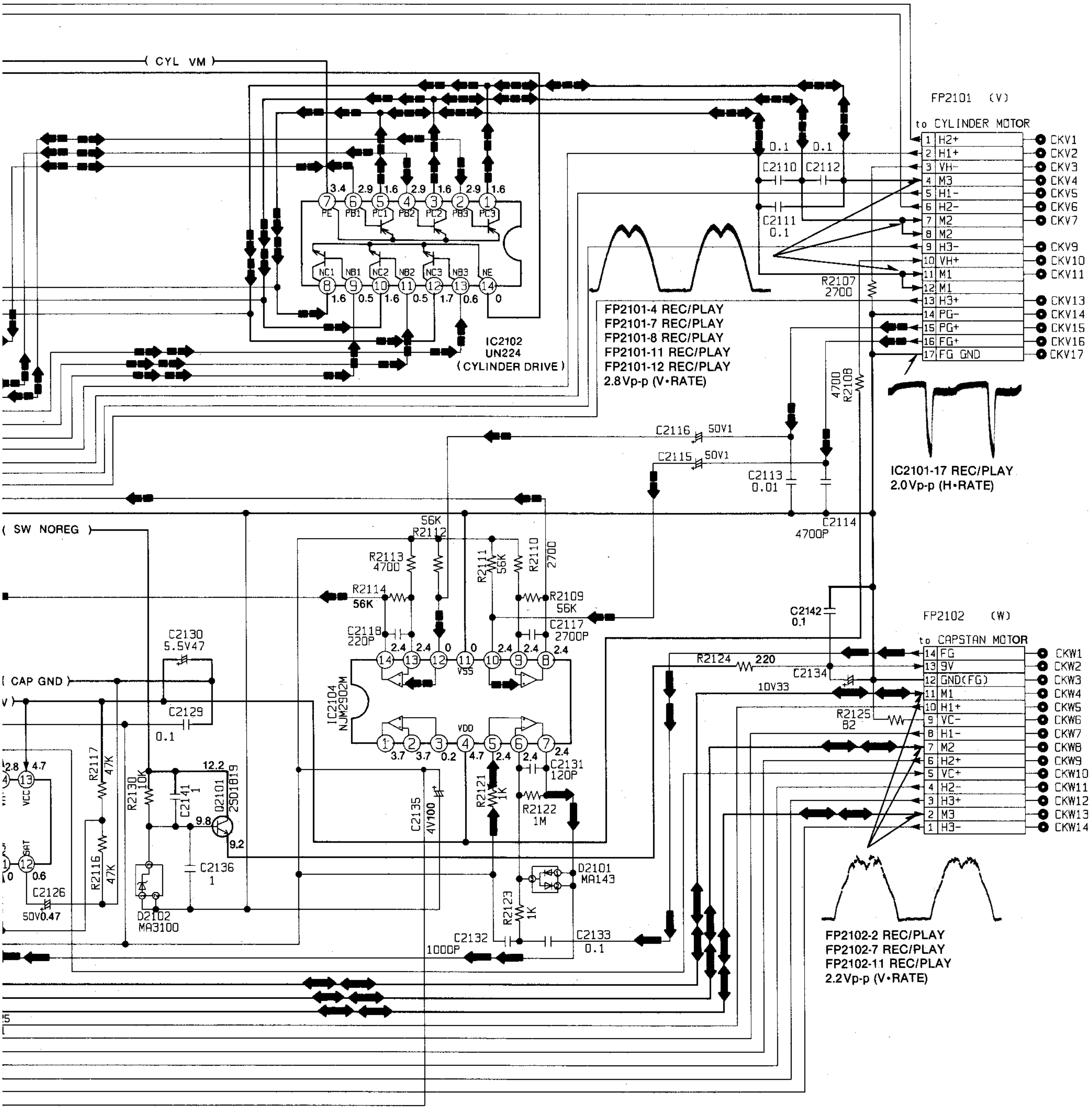
CAPSTAN
CAPSTAN
CYLINDER
CYLINDER



NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS (
THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACK

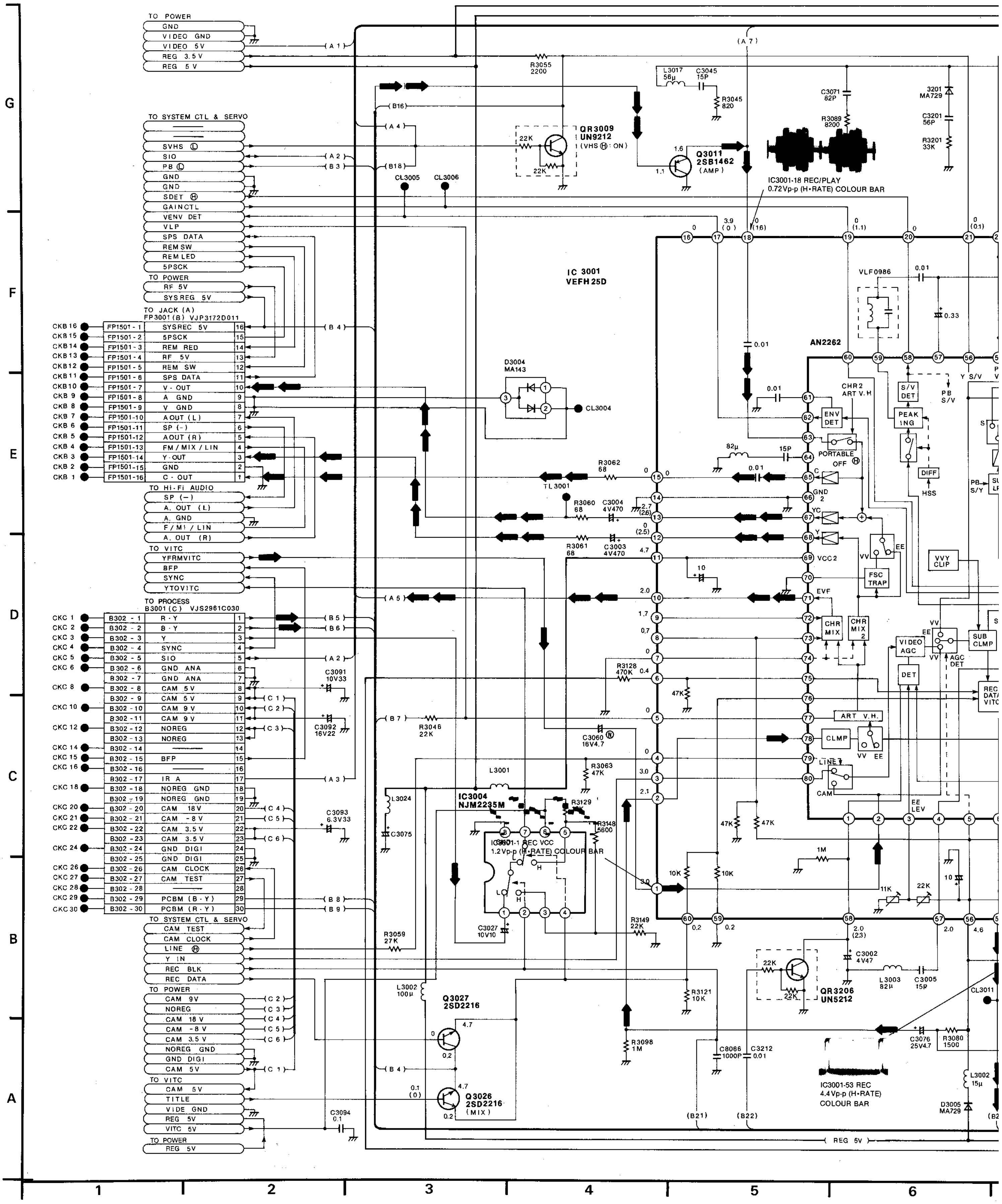
CAPSTAN SERVO SPEED LOOP
CAPSTAN SERVO PHASE LOOP
CYLINDER SERVO SPEED LOOP
CYLINDER SERVO PHASE LOOP



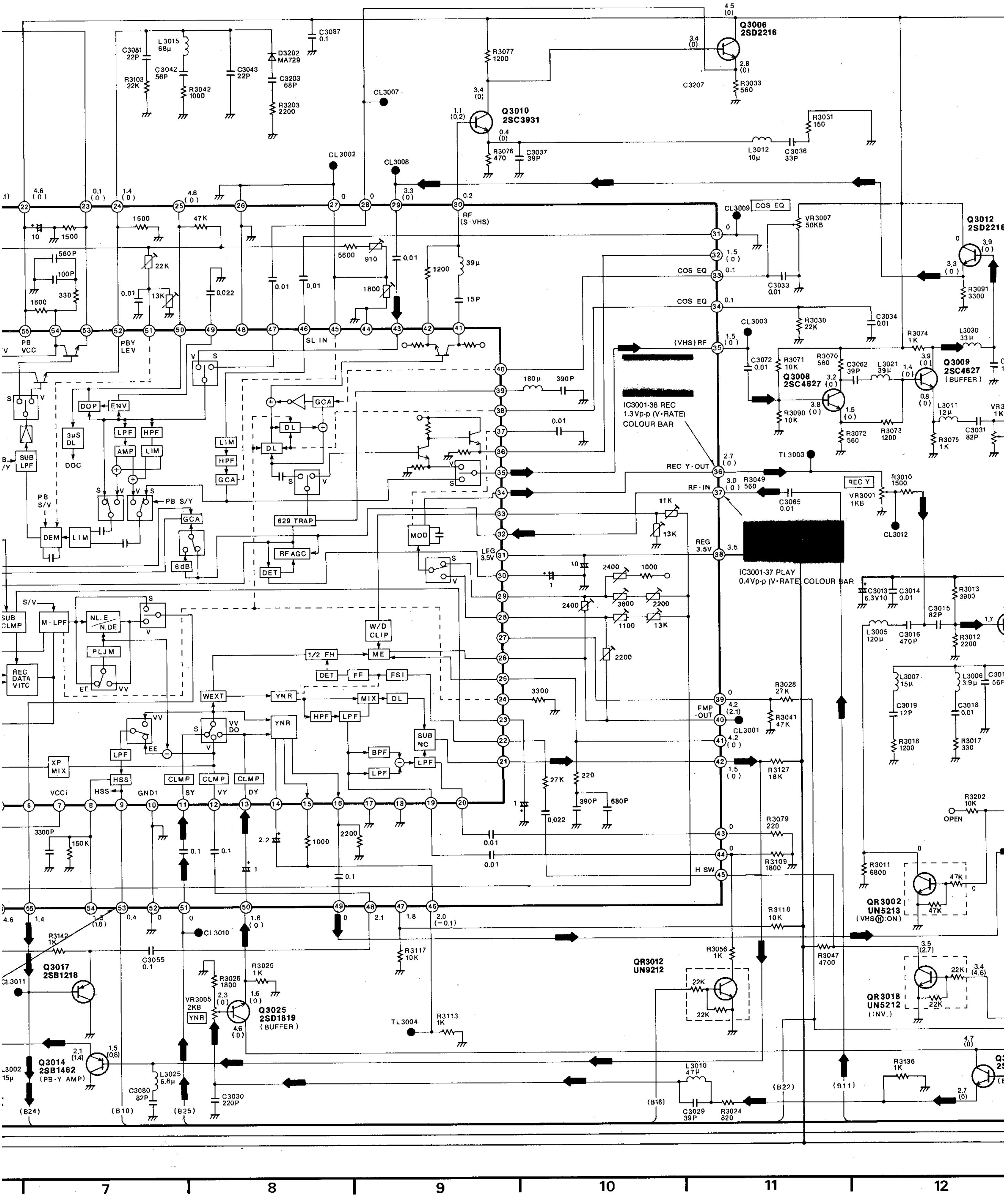
EMENT MODE OF THE DC VOLTAGE IN THE BRACKETS (   ) ON THIS DIAGRAM IS RECORD MODE.
EMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE.

4 5 6 7

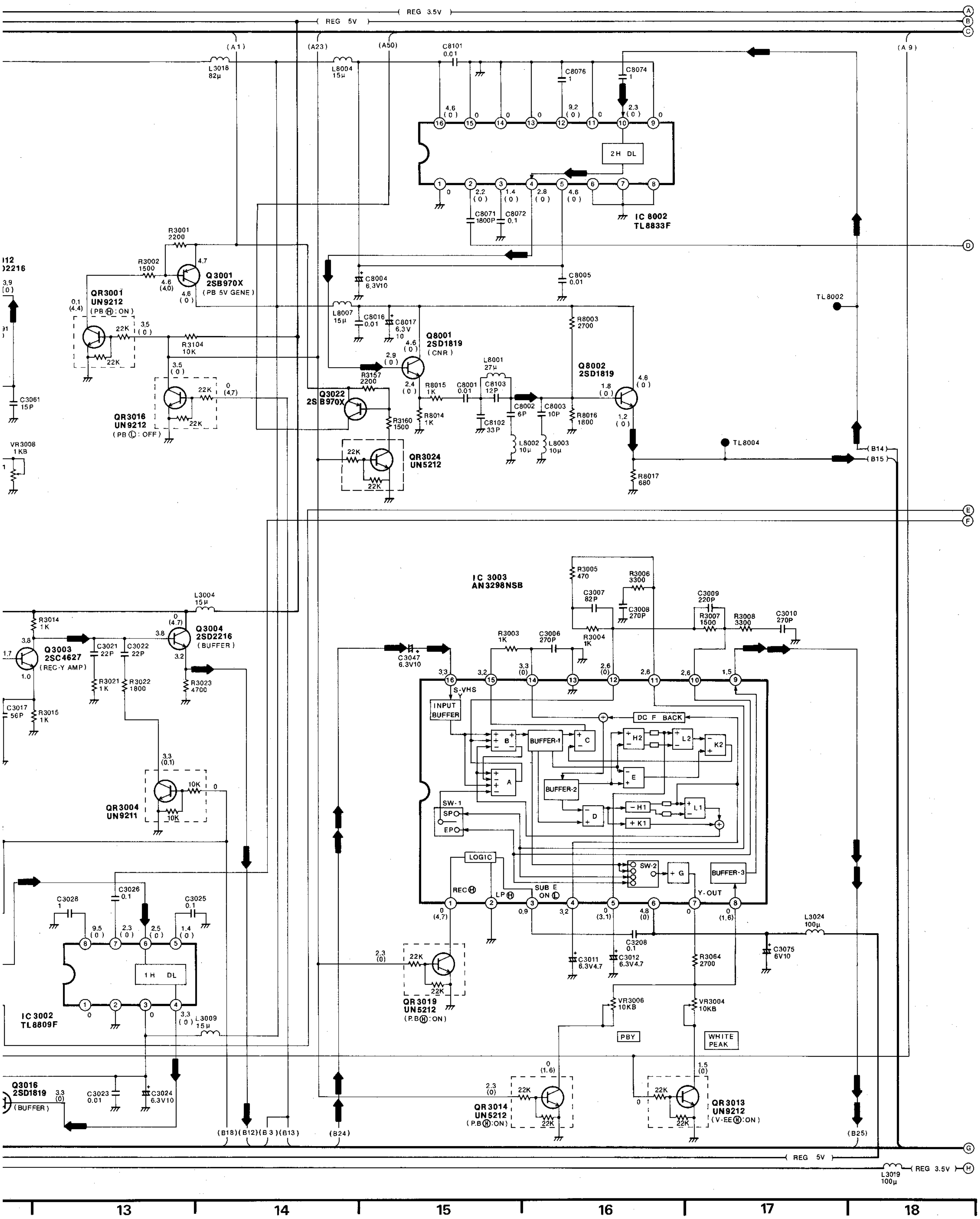
3-19. LUMINANCE/CHROMINANCE & HEAD AMP SCHEMATIC D

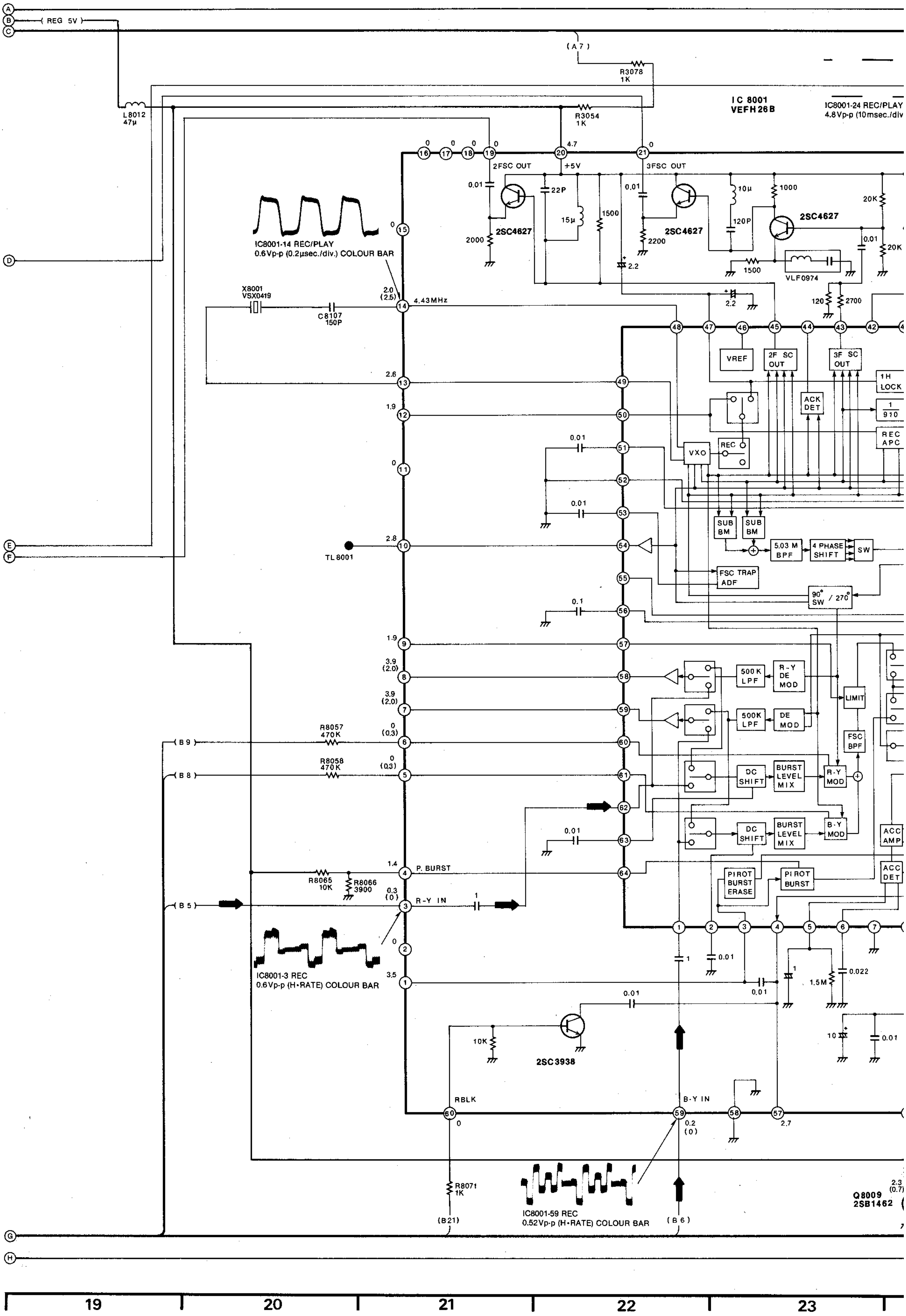


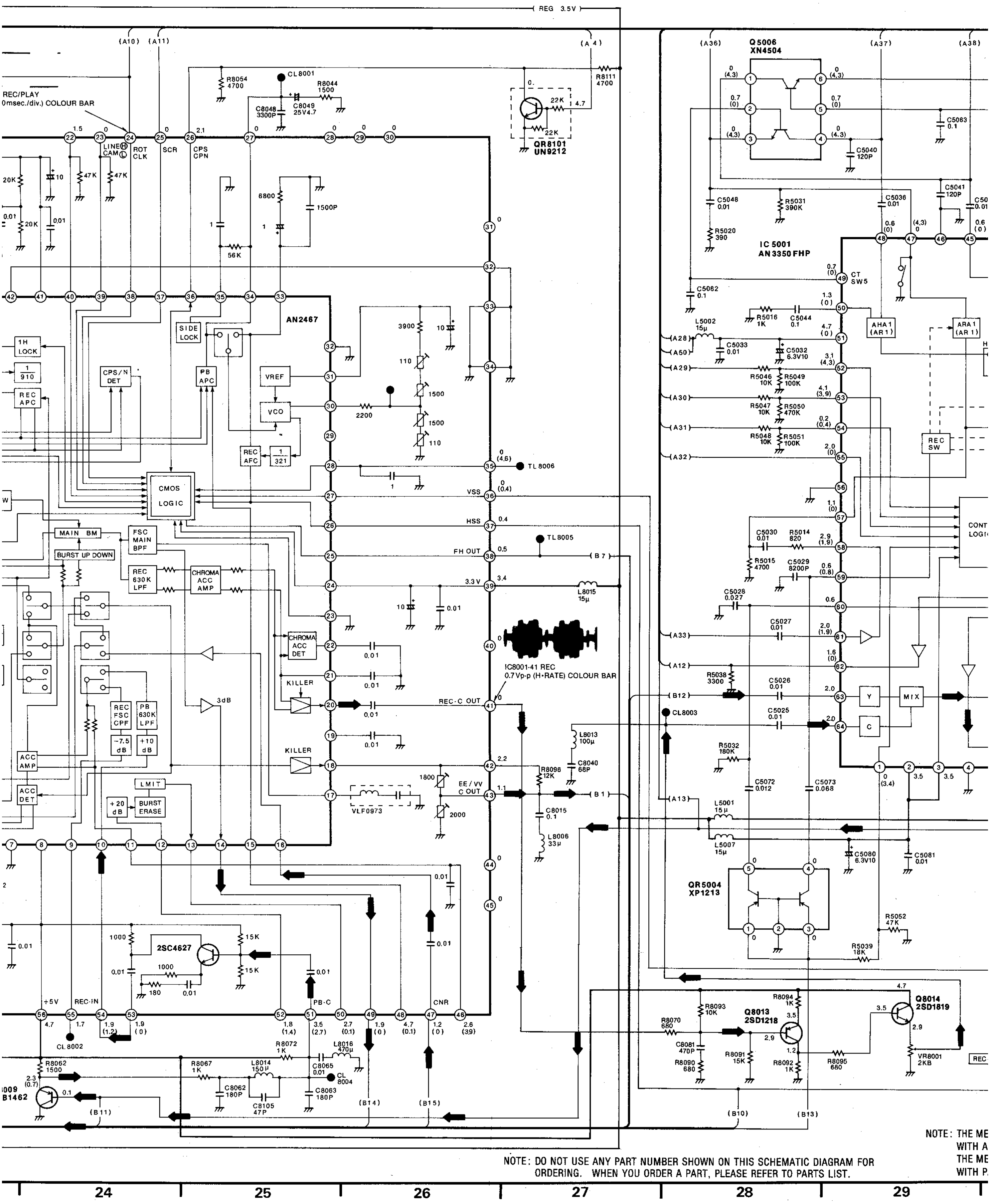
MAIN SIGNAL PATH IN REC MODE



■ MAIN SIGNAL PATH IN PLAYBACK MODE

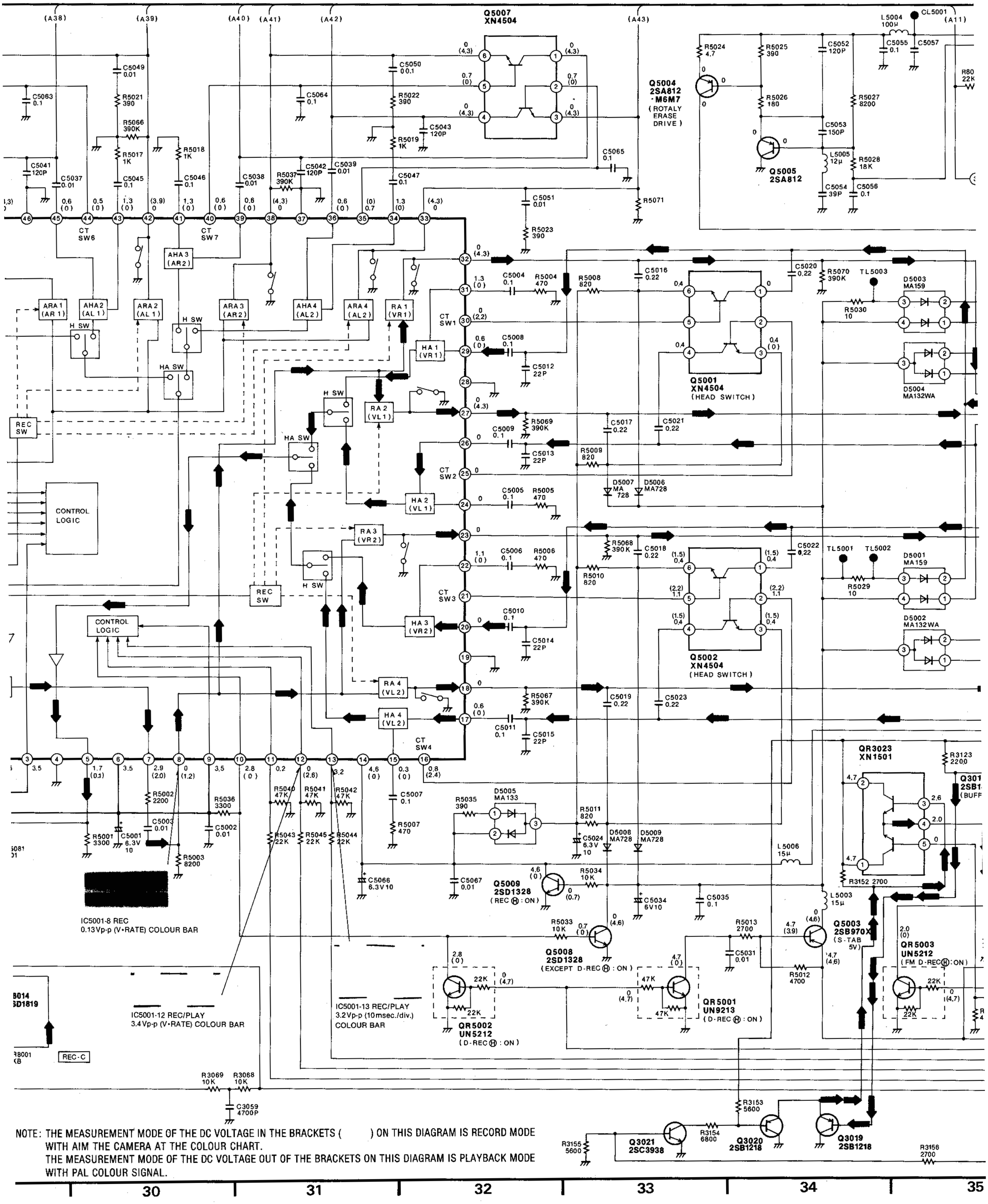



A
B
C
REG 5V
(A7)
R3078
1K
L8012
47μ
R3054
1K
IC 8001
VEFH26B
IC8001-24 REC/PLAY
4.8Vp-p (10msec./div
2FSC OUT
+5V
3FSC OUT
2SC4627
2SC4627
2SC4627
0.01
2000
22P
15μ
1500
0.01
2200
2.2
10μ
120P
1000
1500
VLF0974
20K
0.01
20K
120
2700
2.2
IC8001-14 REC/PLAY
0.6Vp-p (0.2μsec./div.) COLOUR BAR
D
X8001
VSX0419
C8107
150P
4.43MHz
VREF
2F SC
OUT
3F SC
OUT
1H
LOCK
ACK
DET
1
910
REC
APC
REC
VXO
0.01
0.01
SUB
BM
SUB
BM
5.03 M
BPF
4 PHASE
SHIFT
SW
TL8001
E
F
FSC TRAP
ADF
90° / 270°
SW
0.1
500K
LPF
R-Y
DE
MOD
500K
LPF
DE
MOD
LIMIT
FSC
BPF
DC
SHIFT
BURST
LEVEL
MIX
R-Y
MOD
DC
SHIFT
BURST
LEVEL
MIX
B-Y
MOD
ACC
AMP
ACC
DET
PI ROT
BURST
ERASE
PI ROT
BURST
(B9)
R8057
470K
(B8)
R8058
470K
0.01
P. BURST
R8065
10K
R8066
3900
(B5)
R-Y IN
1
IC8001-3 REC
0.6Vp-p (H-RATE) COLOUR BAR
0.01
1
0.01
0.01
1
1.5M
0.022
10
0.01
10K
2SC3938
RBLK
B-Y IN
2.7
R8071
1K
(B21)
IC8001-59 REC
0.52Vp-p (H-RATE) COLOUR BAR
(B6)
Q8009
2SB1462
G
H
19
20
21
22
23

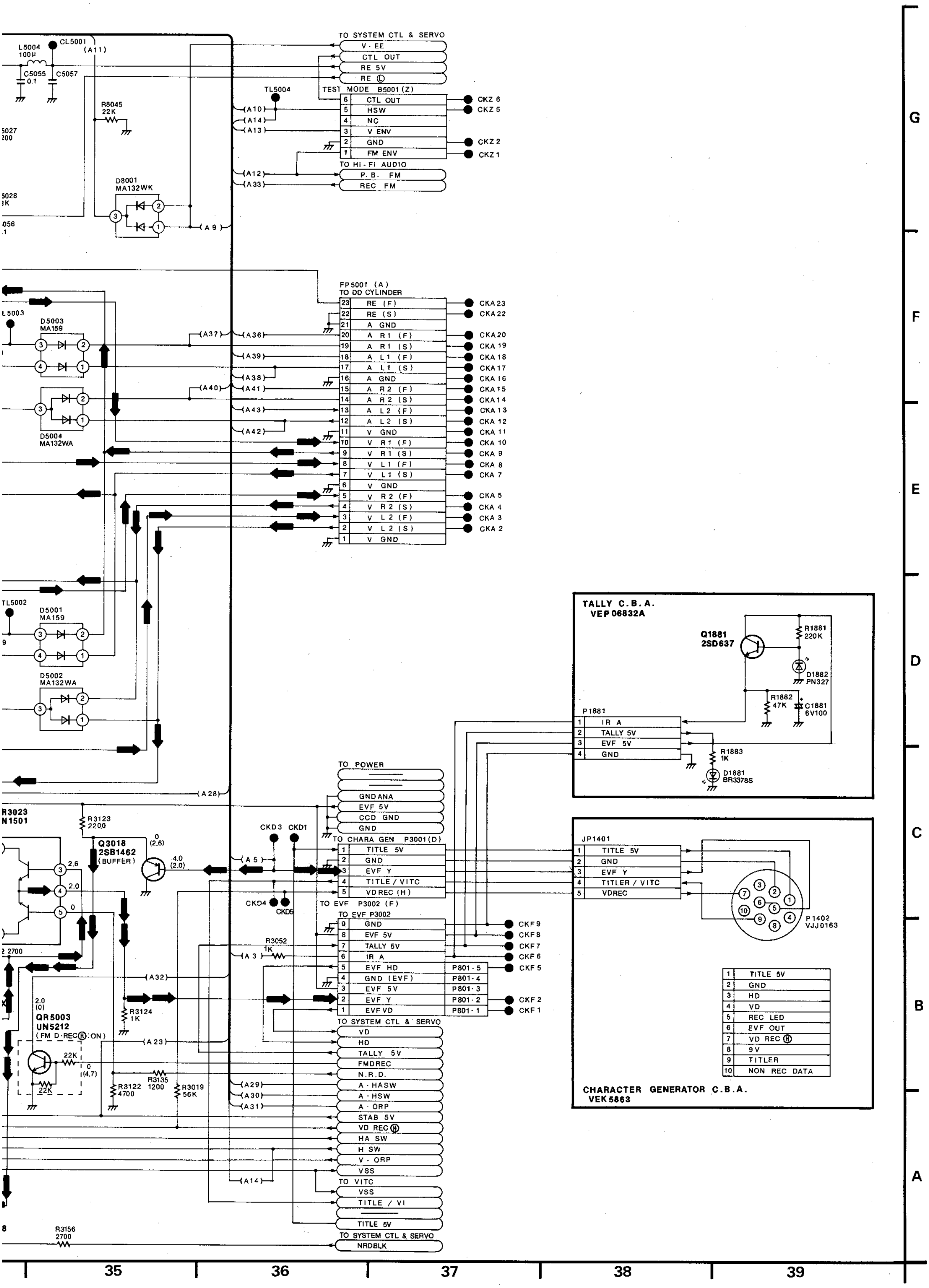


NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

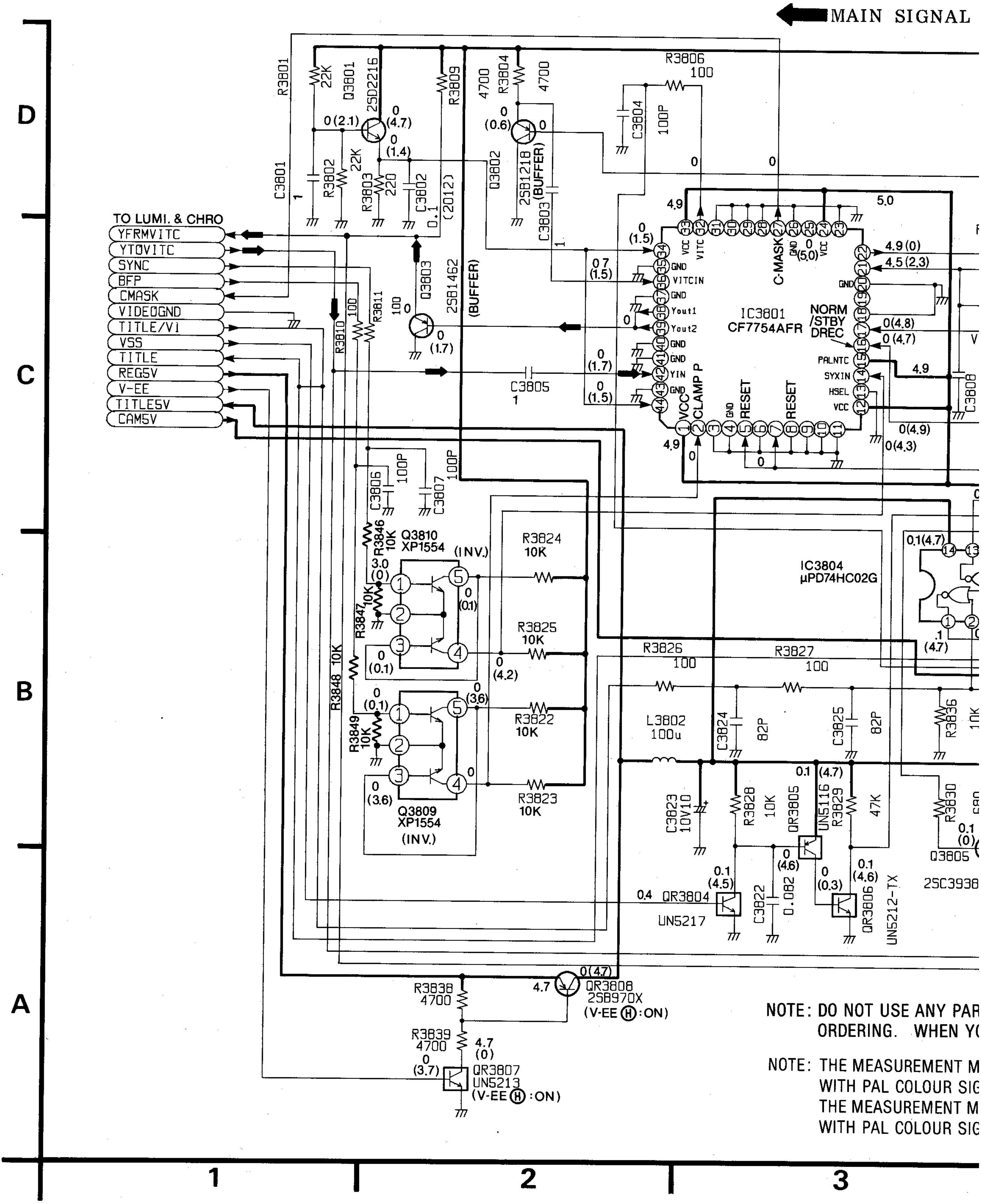
NOTE: THE ME
WITH A
THE ME
WITH P.



NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS ( ) ON THIS DIAGRAM IS RECORD MODE WITH AIM THE CAMERA AT THE COLOUR CHART.
THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE WITH PAL COLOUR SIGNAL.


TO SYSTEM CTL & SERVO
V · EE
CTL OUT
RE 5V
RE Ⓛ
TEST MODE B5001 (Z)
6 CTL OUT CKZ 6
5 HSW CKZ 5
4 NC
3 V ENV
2 GND CKZ 2
1 FM ENV CKZ 1
TO Hi - Fi AUDIO
P. B. FM
REC FM
L5004 100μ
CL5001
C5055 0.1
C5057
R8045 22K
TL5004
D8001 MA132WK
FP5001 (A)
TO DD CYLINDER
23 RE (F) CKA23
22 RE (S) CKA22
21 A GND
20 A R1 (F) CKA20
19 A R1 (S) CKA 19
18 A L1 (F) CKA 18
17 A L1 (S) CKA17
16 A GND CKA 16
15 A R2 (F) CKA15
14 A R2 (S) CKA14
13 A L2 (F) CKA 13
12 A L2 (S) CKA 12
11 V GND CKA 11
10 V R1 (F) CKA 10
9 V R1 (S) CKA 9
8 V L1 (F) CKA 8
7 V L1 (S) CKA 7
6 V GND
5 V R2 (F) CKA 5
4 V R2 (S) CKA 4
3 V L2 (F) CKA 3
2 V L2 (S) CKA 2
1 V GND
D5003 MA159
D5004 MA132WA
TL5002
D5001 MA159
D5002 MA132WA
TALLY C.B.A.
VEP06832A
Q1881 2SD637
R1881 220K
D1882 PN327
R1882 47K
C1881 6V100
P1881
1 IR A
2 TALLY 5V
3 EVF 5V
4 GND
R1883 1K
D1881 BR3378S
TO POWER
GND ANA
EVF 5V
CCD GND
GND
TO CHARA GEN P3001 (D)
1 TITLE 5V
2 GND
3 EVF Y
4 TITLE / VITC
5 VD REC (H)
CKD3 CKD1 CKD4 CKD5
R3023
N1501
R3123 220Ω
Q3018 2SB1462 (BUFFER)
TO EVF P3002 (F)
TO EVF P3002
9 GND CKF9
8 EVF 5V CKF8
7 TALLY 5V CKF7
6 IR A CKF6
5 EVF HD P801 - 5 CKF 5
4 GND (EVF) P801 - 4
3 EVF 5V P801 - 3
2 EVF Y P801 - 2 CKF 2
1 EVF VD P801 - 1 CKF 1
R3052 1K
R3124 1K
QR5003 UN5212 (FM D-REC Ⓗ : ON)
R3122 4700
R3135 1200
R3019 56K
TO SYSTEM CTL & SERVO
VD
HD
TALLY 5V
FMDREC
N.R.D.
A · HASW
A · HSW
A · ORP
STAB 5V
VD REC Ⓗ
HA SW
H SW
V · ORP
VSS
TO VITC
VSS
TITLE / VI
TITLE 5V
TO SYSTEM CTL & SERVO
NRDBLK
R3156 2700
JP1401
1 TITLE 5V
2 GND
3 EVF Y
4 TITLER / VITC
5 VDREC
P1402 VJJ0163
1 TITLE 5V
2 GND
3 HD
4 VD
5 REC LED
6 EVF OUT
7 VD REC Ⓗ
8 9V
9 TITLER
10 NON REC DATA
CHARACTER GENERATOR C.B.A.
VEK5863
G
F
E
D
C
B
A
35
36
37
38
39

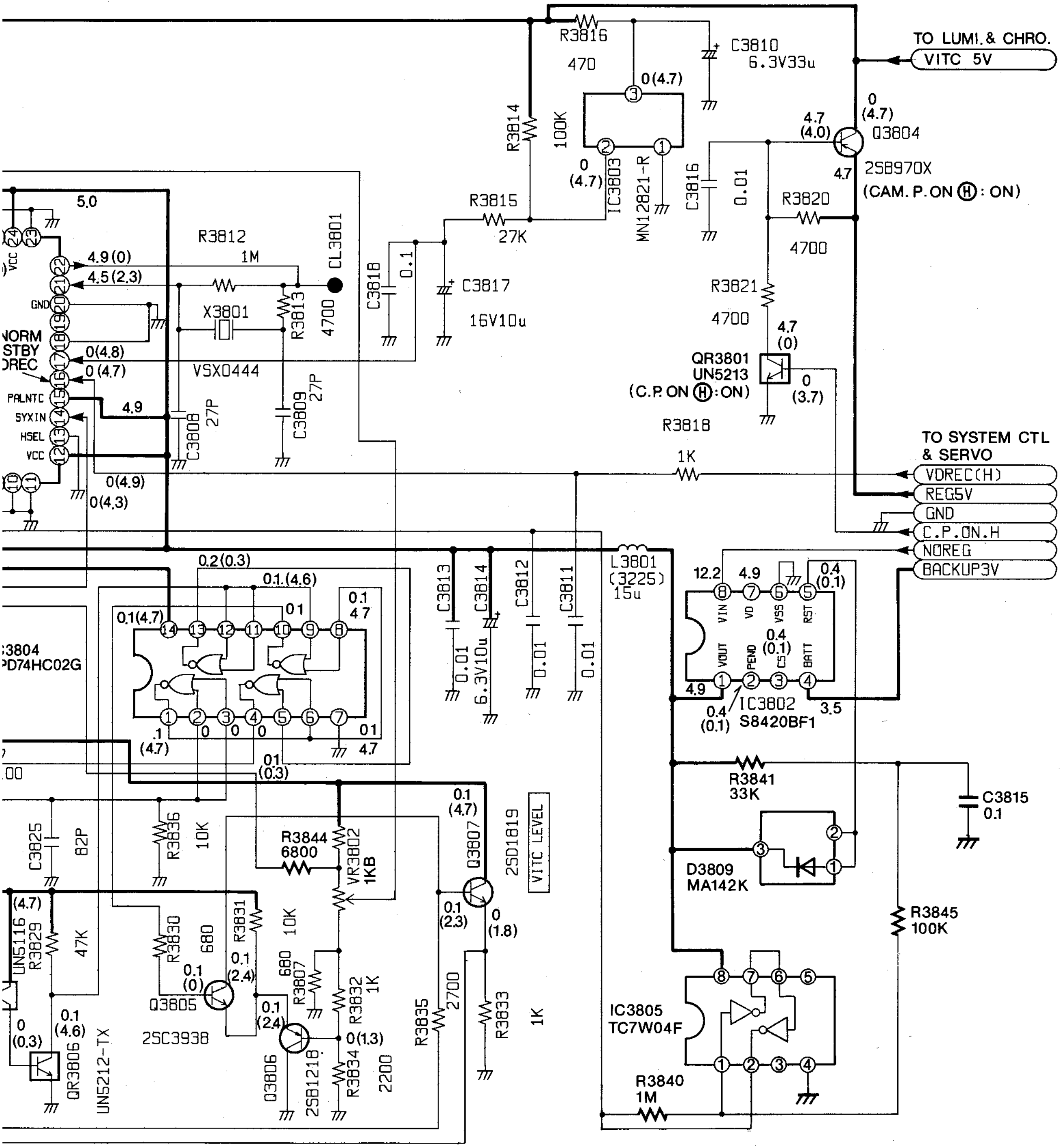
3-20. VITC SCHEMATIC DIAGRAM



NOTE: DO NOT USE ANY PAR
ORDERING. WHEN Y(

NOTE: THE MEASUREMENT M
WITH PAL COLOUR SIG
THE MEASUREMENT M
WITH PAL COLOUR SIG

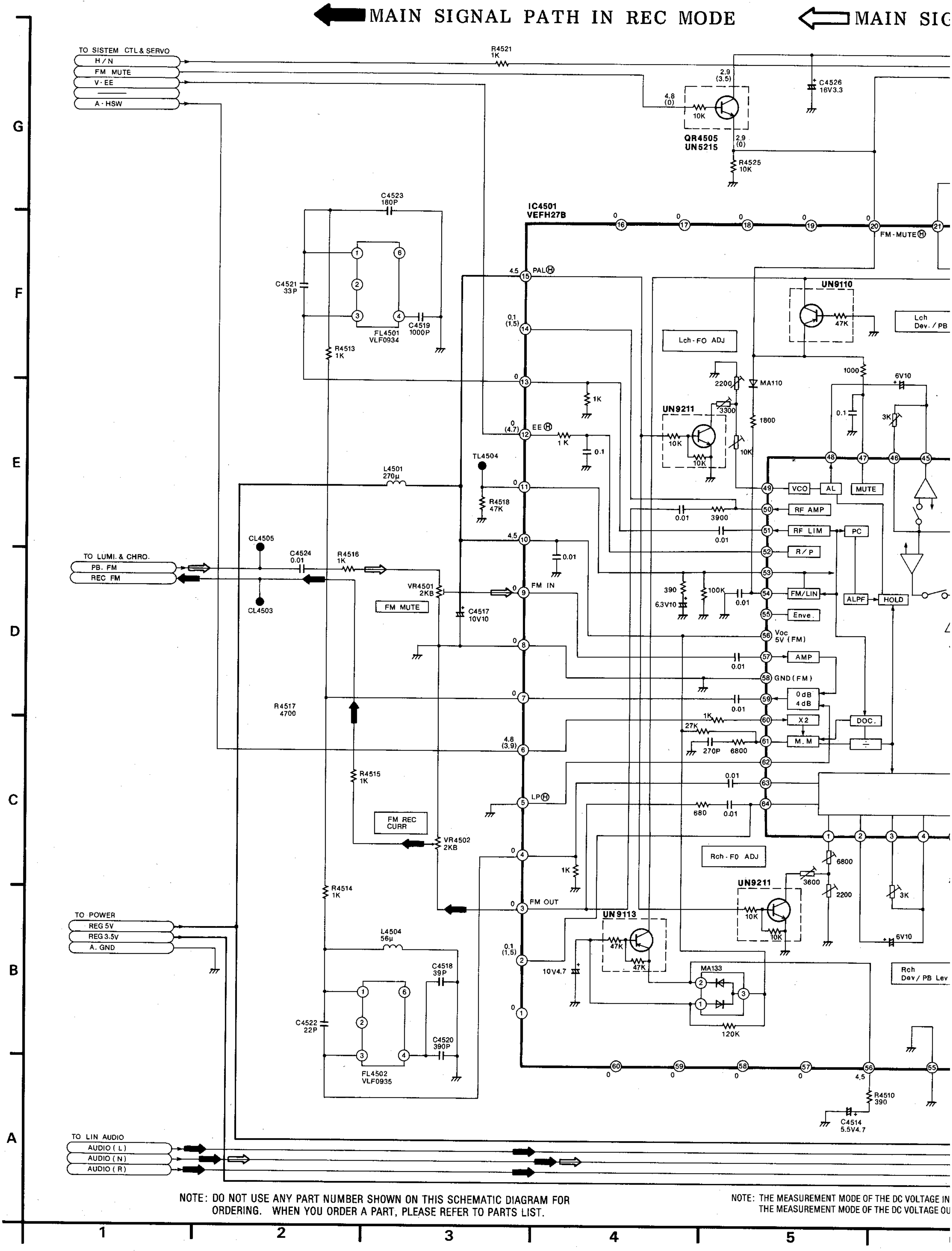
■MAIN SIGNAL PATH



: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS ( ) ON THIS DIAGRAM IS RECORD MODE WITH PAL COLOUR SIGNAL.
THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE WITH PAL COLOUR SIGNAL.

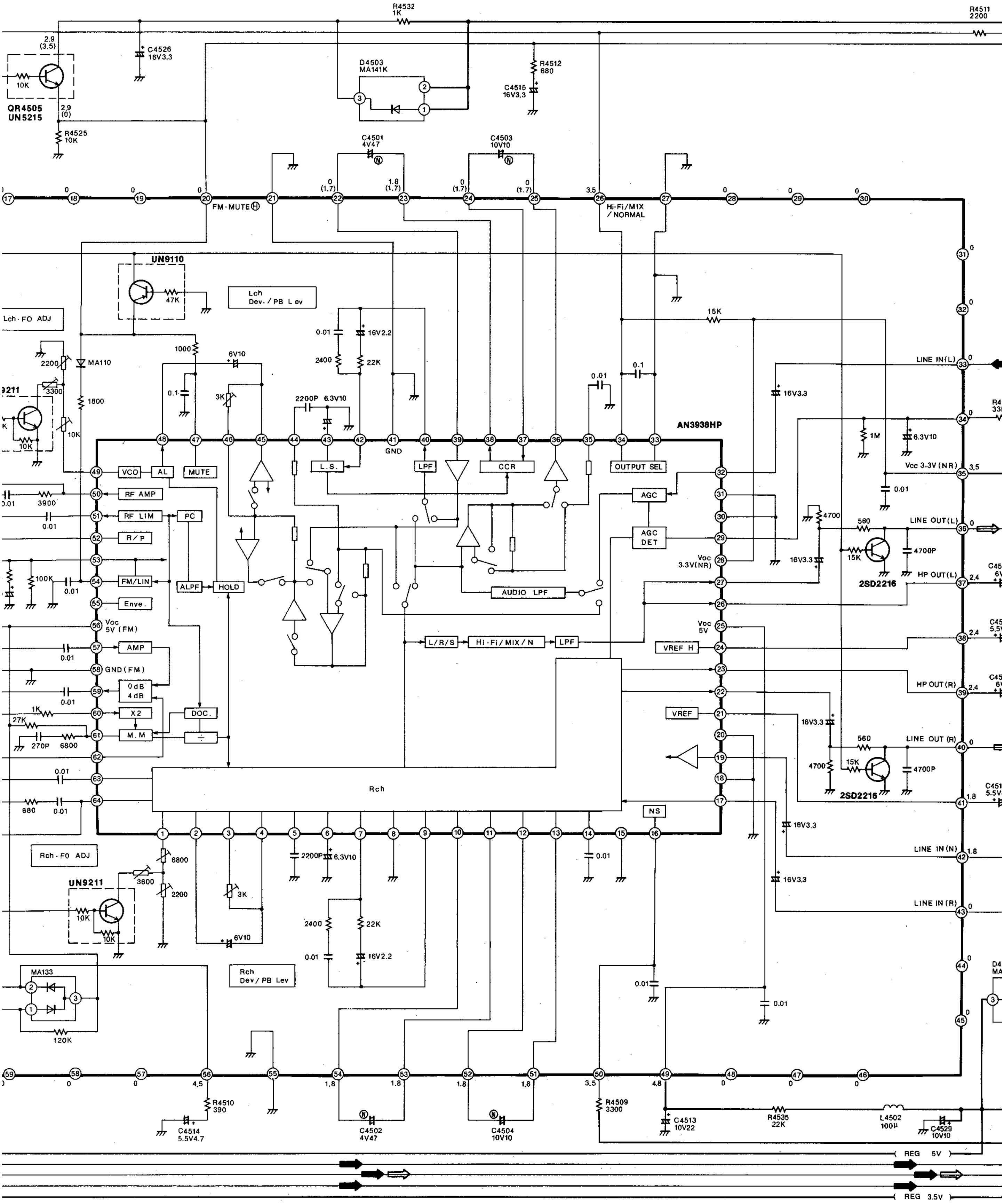
3-21. Hi-Fi AUDIO SCHEMATIC DIAGRAM



NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN
THE MEASUREMENT MODE OF THE DC VOLTAGE OU

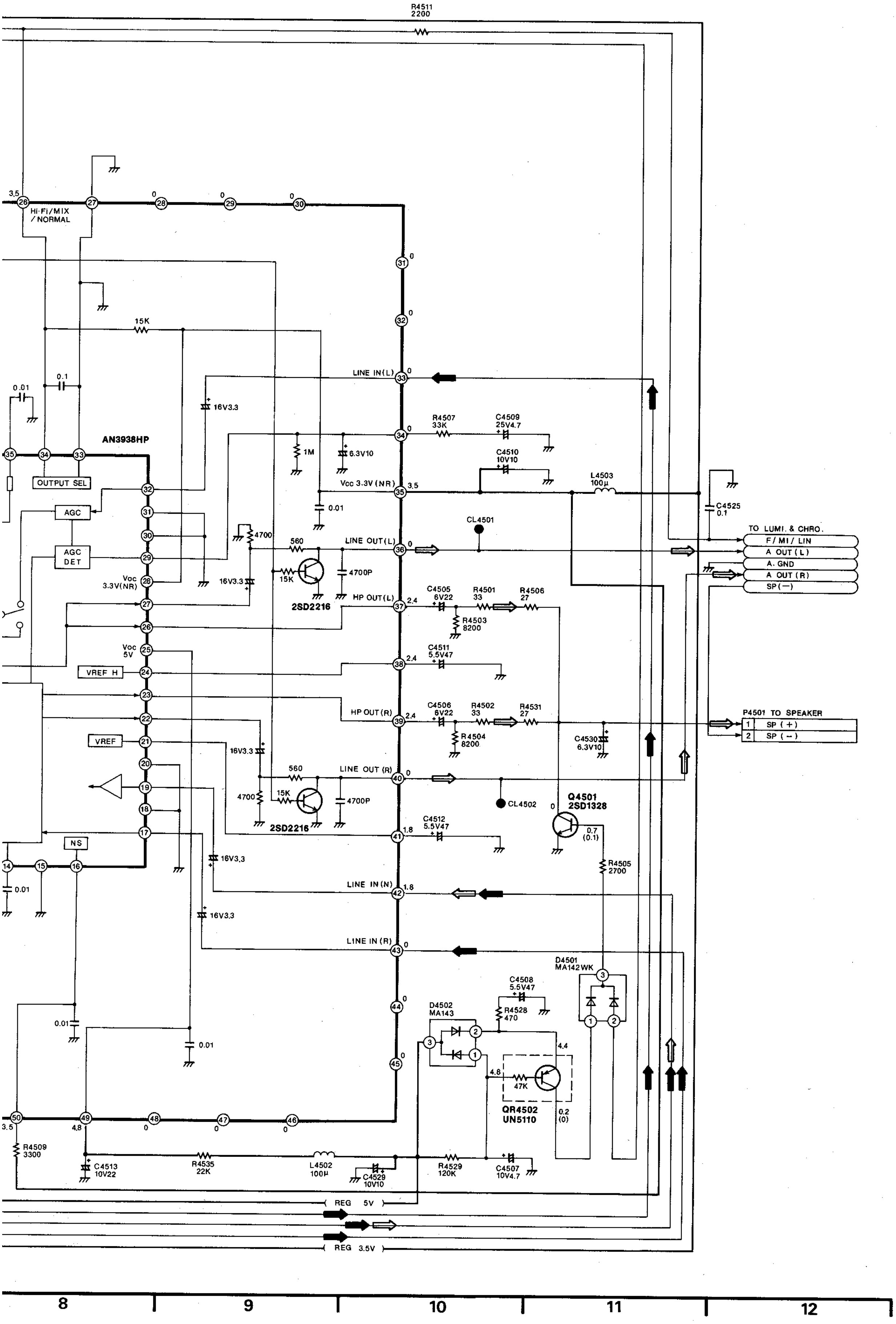
MODE ⇦ MAIN SIGNAL PATH IN PLAYBACK MODE



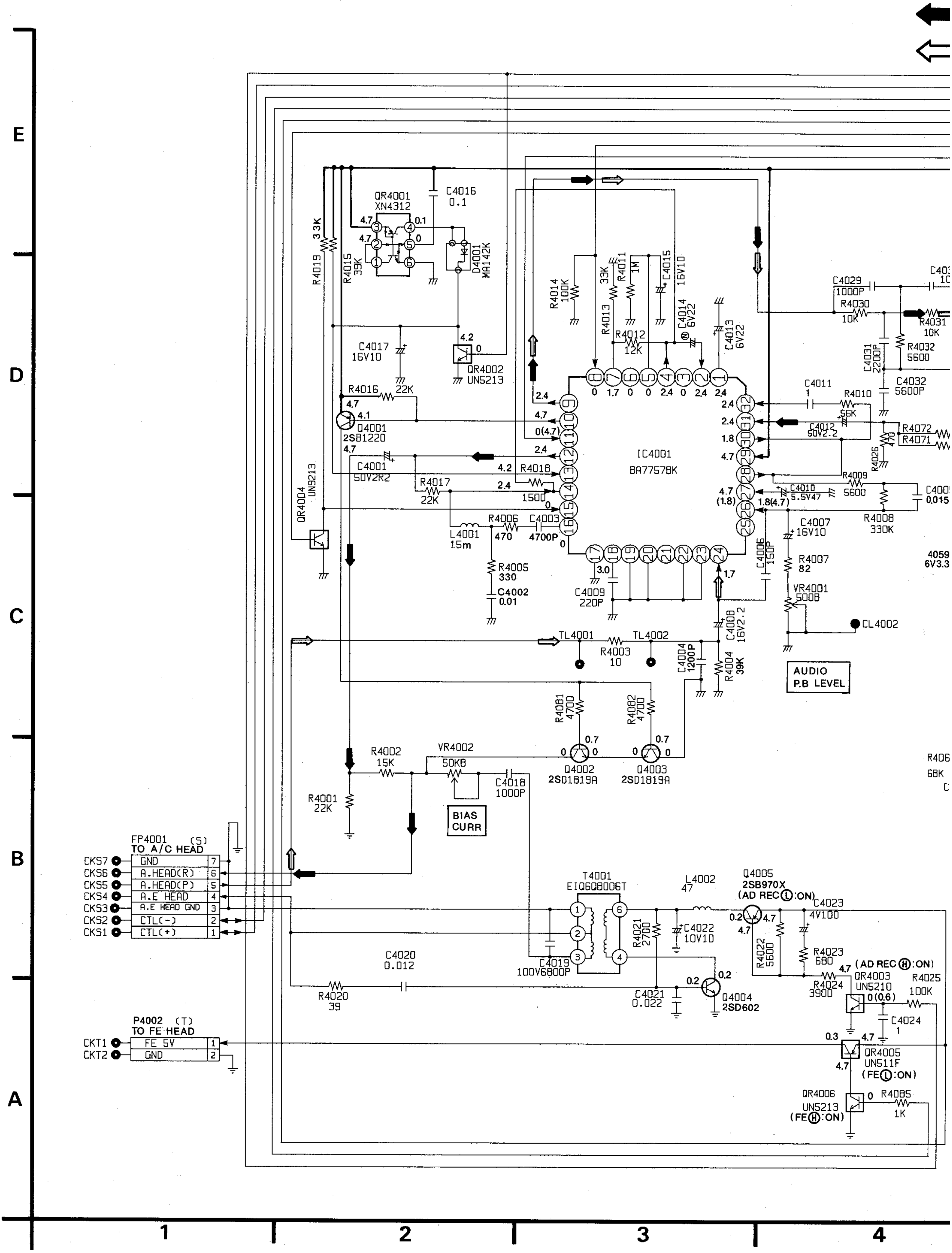
NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS ( ) ON THIS DIAGRAM IS RECORD MODE.
THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE.

5 6 7 8 9 1

MODE

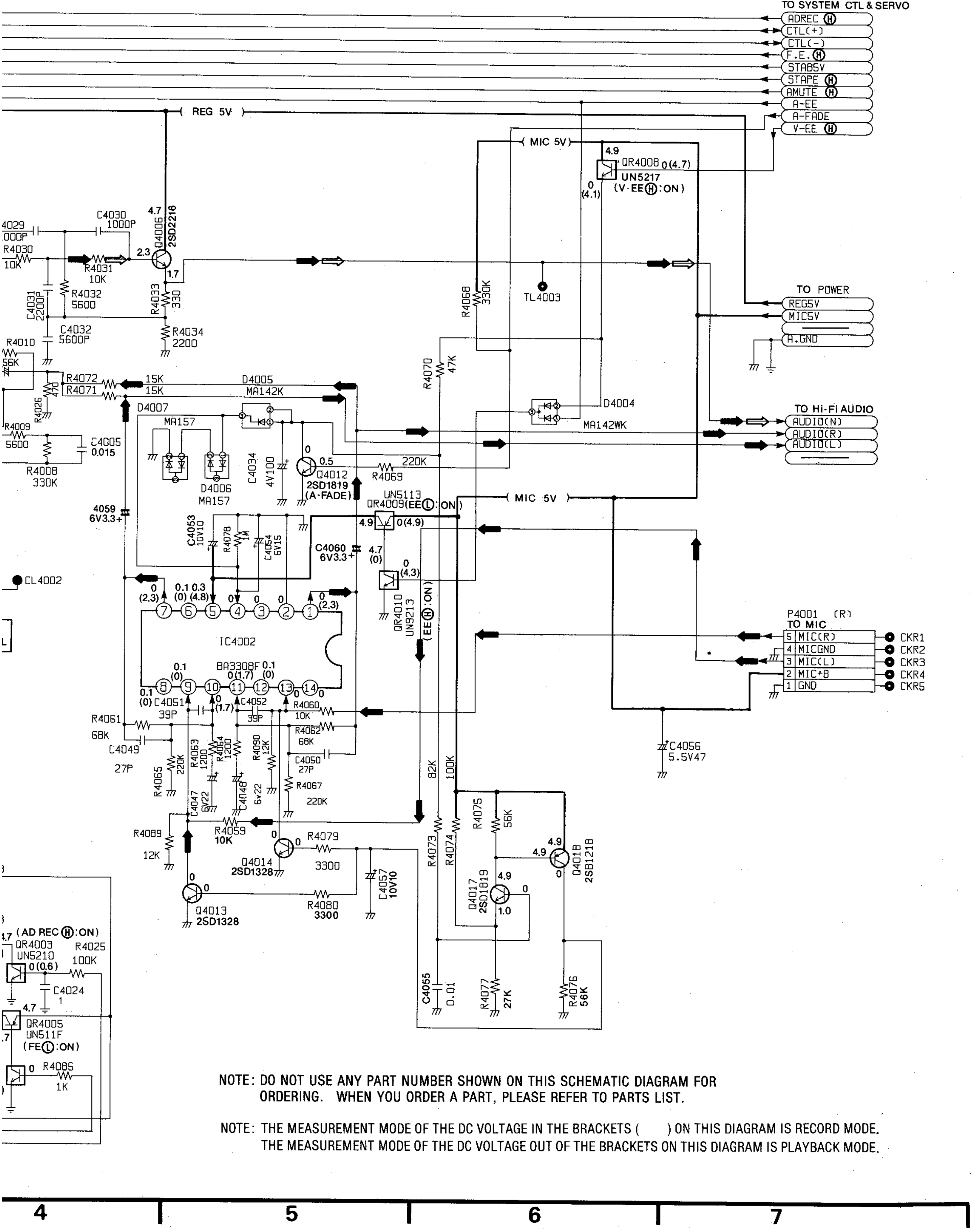

R4511
2200
Hi-Fi/MIX
/NORMAL
3.5
0
AN3938HP
OUTPUT SEL
AGC
AGC
DET
15K
0.01
0.1
16V3.3
LINE IN(L)
R4507
33K
C4509
25V4.7
1M
6.3V10
Vcc 3.3V(NR)
3.5
C4510
10V10
L4503
100µ
C4525
0.1
0.01
Vcc
3.3V(NR)
4700
560
15K
4700P
2SD2216
CL4501
LINE OUT(L)
HP OUT(L)
2.4
C4505
6V22
R4501
33
R4506
27
R4503
8200
Vcc
5V
VREF H
C4511
5.5V47
VREF
HP OUT(R)
C4506
6V22
R4502
33
R4531
27
R4504
8200
C4530
6.3V10
TO LUMI. & CHRO.
F/MI/LIN
A OUT(L)
A. GND
A OUT(R)
SP(−)
P4501 TO SPEAKER
1 SP(+)
2 SP(−)
16V3.3
4700
560
15K
4700P
2SD2216
LINE OUT(R)
CL4502
Q4501
2SD1328
0.7
(0.1)
C4512
5.5V47
1.8
NS
16V3.3
0.01
LINE IN(N)
R4505
2700
16V3.3
LINE IN(R)
D4501
MA142WK
C4508
5.5V47
D4502
MA143
R4528
470
4.4
4.8
47K
QR4502
UN5110
0.2
(0)
0.01
0.01
R4509
3300
C4513
10V22
R4535
22K
L4502
100µ
C4529
10V10
R4529
120K
C4507
10V4.7
REG 5V
REG 3.5V
8
9
10
11
12

3-22. AUDIO SCHEMATIC DIAGRAM



◀ MAIN SIGNAL PATH IN REC MODE

⇦ MAIN SIGNAL PATH IN PLAYBACK MODE



NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS ( ) ON THIS DIAGRAM IS RECORD MODE.
THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE.

MAIN C.B.A. ADDRESS INFORMATION

POWER Section	
Transistor	
Q1001	G-14
Q1002	E-13
Q1003	G-15
Q1004	G-14
Q1005	F-13
Q1006	E-16
Q1061	G-15
Q1062	G-16
Transistor & Resistor	
QR1002	F-14
QR1006	F-14
QR1061	E-15
Integrated Circuit	
IC1001	F-15
IC1102	E-16
Test Point	
CL1007	G-9
CL1008	G-9
CL1009	G-10
TL1001	E-9
TL1002	E-9
TL1003	E-10
TL1004	E-10
TL1005	E-10
TL1006	E-10
Adjustment	
VR1001	F-9
VR1002	F-9
VR1003	E-8
Connector	
P1001	G-11

ADDRESS INFORMATION

SUB SERVO Section	
Transistor	
Q2101	B-11
Integrated Circuit	
IC2101	B-14
IC2102	A-14
IC2103	B-13
IC2104	B-13
Test Point	
CL2101	B-9
Connector	
FP2101	A-9
FP2102	A-11

ADDRESS INFORMATION

SYSTEM CONTROL & SERVO Section	
Transistor	
Q6002	D-13
Q6003	C-16
Q6004	C-10
Q6005	C-10
Q6006	A-17
Q6007	C-10
Q6008	C-10
Q6009	C-10
Q6010	F-16
Q6012	B-17
Transistor & Resistor	
QR6001	C-18
QR6002	C-19
QR6003	D-18
QR6004	D-19
QR6005	C-13
QR6007	A-17
QR6008	E-8
QR6010	D-14
QR6011	E-17
QR6012	B-17
QR6013	D-11
QR6015	D-17
QR6017	B-17
QR6018	E-16
Integrated Circuit	
IC6001	C-13
IC6002	C-14
IC6003	C-13
IC6004	D-8
IC6005	D-14
IC6006	D-13
IC6007	C-17
IC6008	D-14
IC6009	F-17
IC6010	F-17
IC6011	D-6
Test Point	
CL6004	D-7
CL6005	D-7
CL6201	D-6
CL6202	C-9
CL6203	C-9
CL6204	B-10
CL6205	C-10
CL6206	B-7
TL6001	E-7
TL6002	E-7
TL6003	D-4
TL6004	D-7
TL6005	D-7
TL6006	C-8
Adjustment	
VR6201	C-9
Connector	
B6001	E-8
FP6001	G-11
P6001	F-11
P6004	A-7
P6005	G-6
P6006	D-1
P6007	G-5
P6008	C-11
P6009	D-11

ADDRESS INFORMATION

LUMINANCE/CHROMINANCE & HEAD AMP Section			
Transistor		**Integrated Circuit**	
Q3001	D-22	IC3001	E-3
Q3004	D-21	IC3002	F-21
Q3006	F-20	IC3003	D-22
Q3008	E-21	IC3004	D-5
Q3009	E-21	IC5001	B-3
Q3010	E-3	IC8001	E-5
Q3011	G-22	IC8002	F-19
Q3012	E-21	**Test Point**	
Q3014	D-21	CL3001	E-3
Q3016	F-22	CL3002	E-3
Q3017	D-3	CL3003	E-3
Q3018	F-20	CL3004	E-4
Q3019	G-3	CL3005	E-4
Q3020	G-3	CL3006	E-4
Q3021	G-3	CL3007	E-3
Q3022	C-2	CL3008	E-3
Q3025	F-2	CL3009	E-2
Q3026	D-20	CL3010	D-3
Q3027	E-20	CL3011	D-4
Q5001	B-20	CL3012	E-3
Q5002	A-21	CL5001	B-4
Q5003	B-20	CL8001	E-5
Q5004	A-4	CL8002	F-6
Q5005	A-5	CL8003	E-5
Q5006	B-20	CL8004	F-6
Q5007	B-20	TL3001	C-5
Q5008	B-19	TL3003	E-2
Q5009	A-20	TL3004	D-3
Q8001	F-5	TL5001	A-3
Q8002	E-6	TL5002	A-3
Q8009	F-18	TL5003	A-3
Q8013	E-6	TL5004	D-8
Q8014	E-18	TL8001	F-5
Transistor & Resistor		TL8002	E-5
QR3001	D-22	TL8004	E-6
QR3002	D-2	TL8005	E-5
QR3004	D-21	TL8006	E-5
QR3009	E-20	**Adjustment**	
QR3012	E-21	VR3001	D-2
QR3013	D-21	VR3004	D-3
QR3014	D-2	VR3005	F-2
QR3016	D-22	VR3006	D-3
QR3018	D-3	VR3007	E-3
QR3019	D-2	VR3008	E-2
QR3023	F-4	VR8001	E-5
QR3024	C-2	**Connector**	
QR3206	C-3	B3001	E-22
QR5001	C-19	B5001	C-4
QR5002	B-3	FP3001	B-6
QR5003	C-3	FP5001	A-3
QR5004	C-21	P3001	G-2
QR8101	E-19	P3002	G-4

ADDRESS INFORMATION

VITC Section	
Transistor	
Q3801	B-22
Q3802	B-1
Q3803	B-22
Q3804	C-2
Q3809	B-22
Q3810	C-22
Transistor & Resistor	
QR3801	C-1
QR3807	C-22
QR3808	C-22
Test Point	
CL3801	A-1
Integrated Circuit	
IC3801	B-22
IC3802	B-22
IC3803	B-2
IC3805	C-21
Adjustment	
VR3802	A-2

ADDRESS INFORMATION

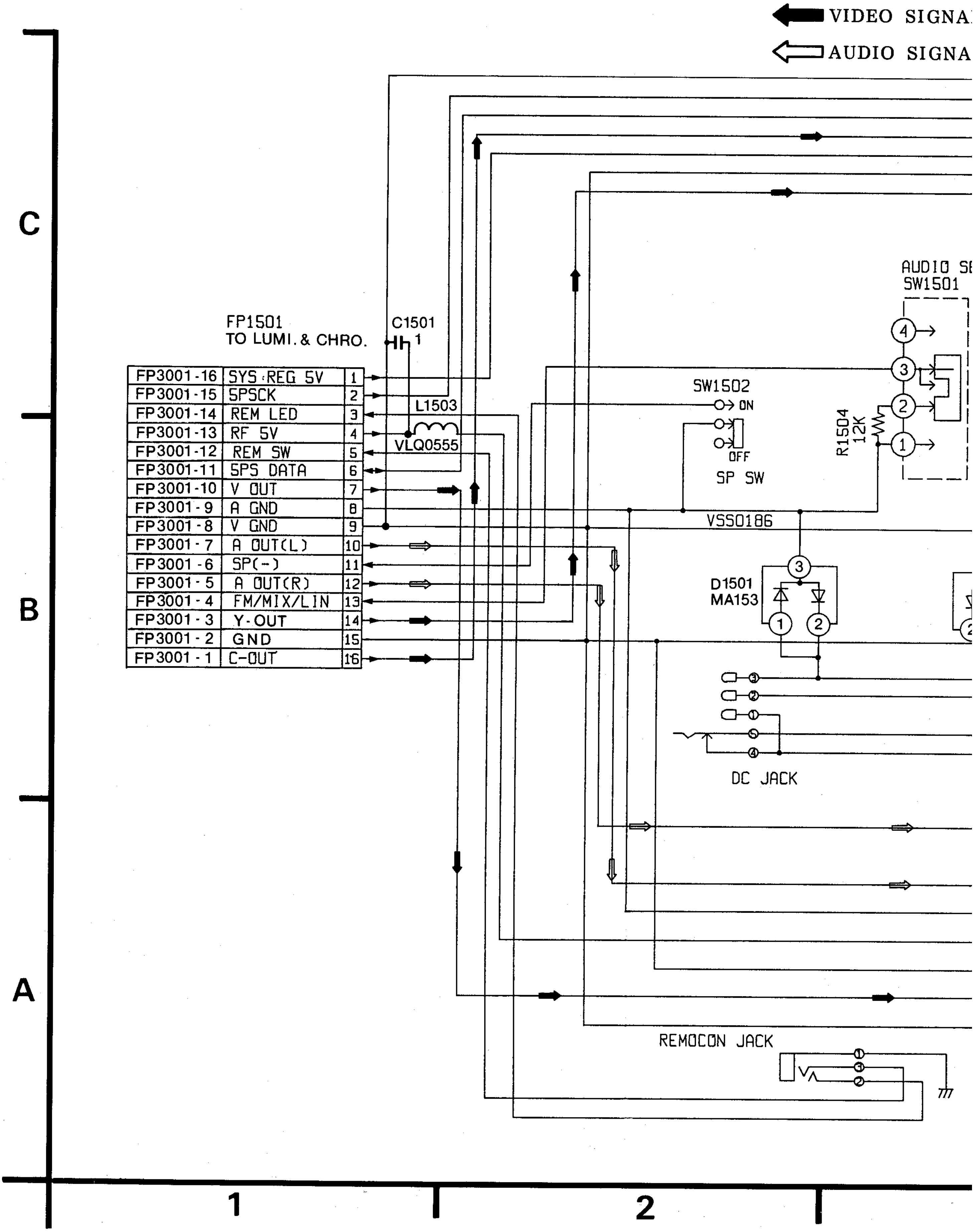
Hi-Fi AUDIO Section	
Transistor	
Q4501	B-18
Transistor & Resistor	
QR4502	B-18
QR4505	B-18
Integrated Circuit	
IC4501	B-6
Test Point	
CL4501	B-7
CL4502	B-6
CL4503	C-5
CL4505	C-5
TL4504	B-5
Adjustment	
VR4501	C-5
VR4502	C-5

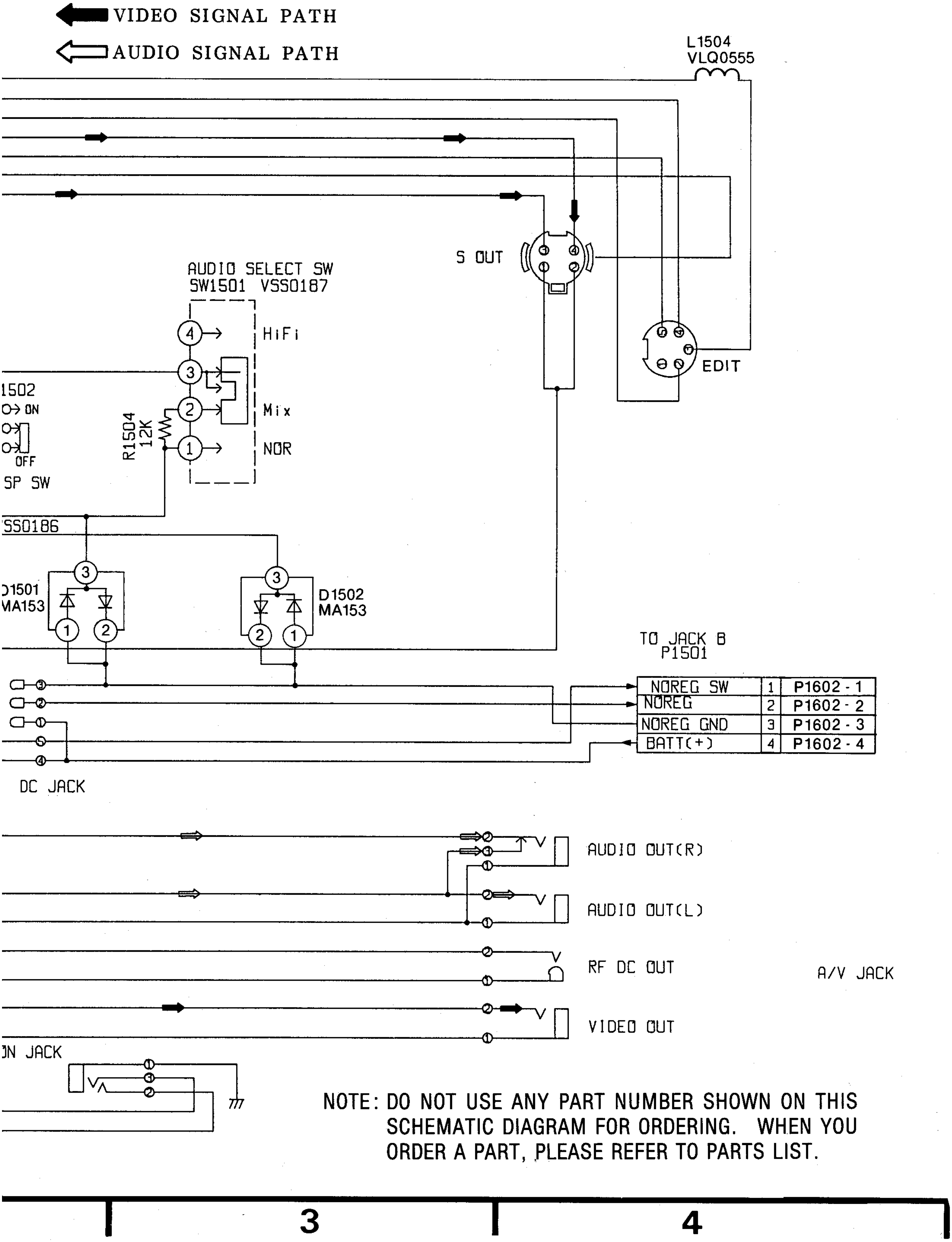
ADDRESS INFORMATION

AUDIO Section	
Transistor	
Q4001	B-15
Q4002	A-16
Q4003	A-16
Q4004	A-15
Q4005	A-15
Q4006	B-15
Q4010	B-16
Q4012	F-7
Q4013	G-17
Q4014	F-17
Q4017	F-7
Q4018	F-7
Transistor & Resistor	
QR4001	B-15
QR4002	B-15
QR4003	A-16
QR4004	B-16
QR4005	A-16
QR4006	A-16
QR4008	F-7
QR4009	F-7
Integrated Circuit	
IC4001	B-16
IC4002	F-17
Test Point	
CL4001	B-8
CL4002	B-8
TL4001	B-8
TL4002	A-7
TL4003	B-7
Adjustment	
VR4001	B-8
VR4002	B-8
Connector	
FP4001	A-8
P4001	G-6
P4002	C-1

ADDRESS INFORMATION

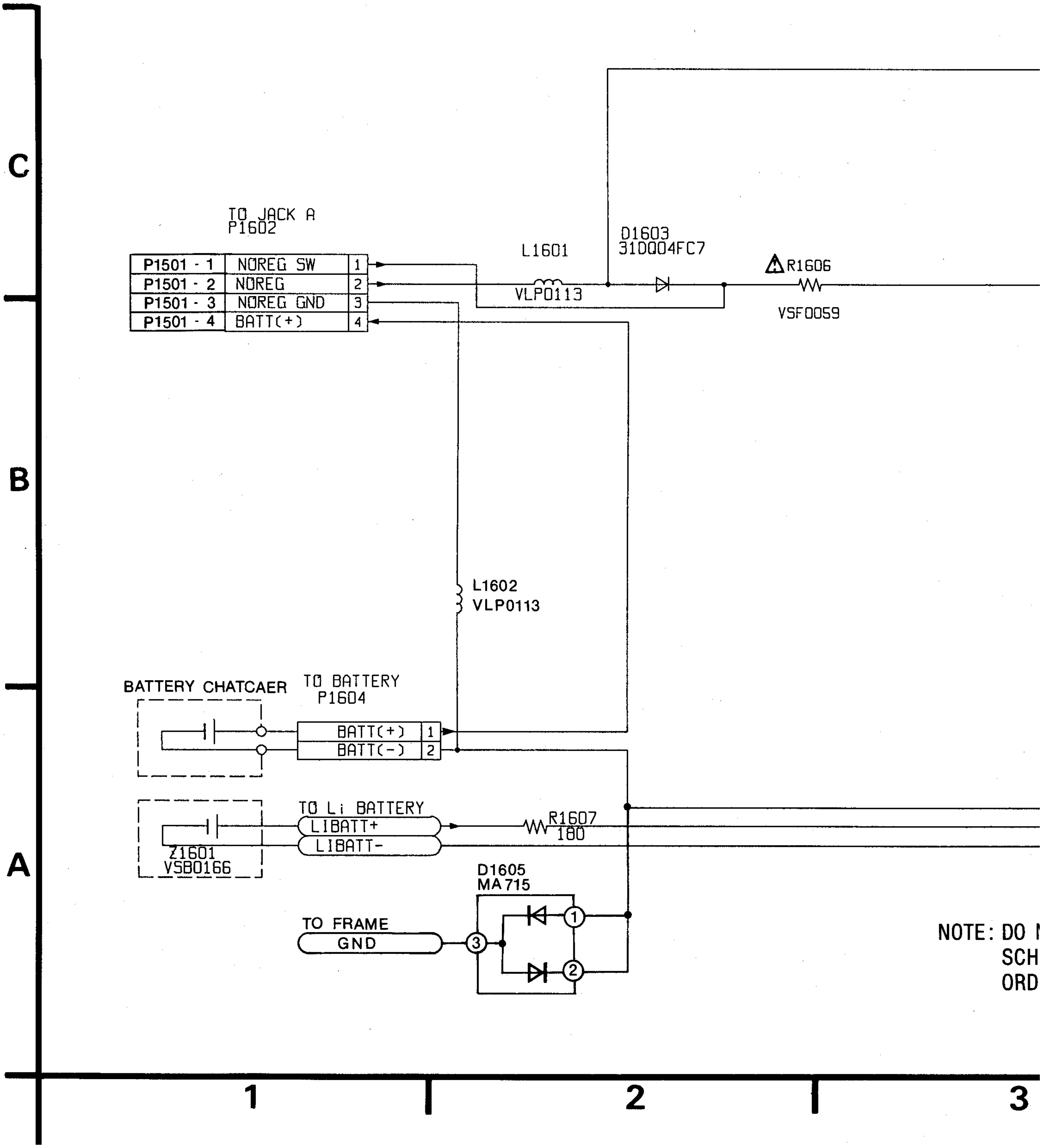
3-24. AV JACK (A) SCHEMATIC DIAGRAM





NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

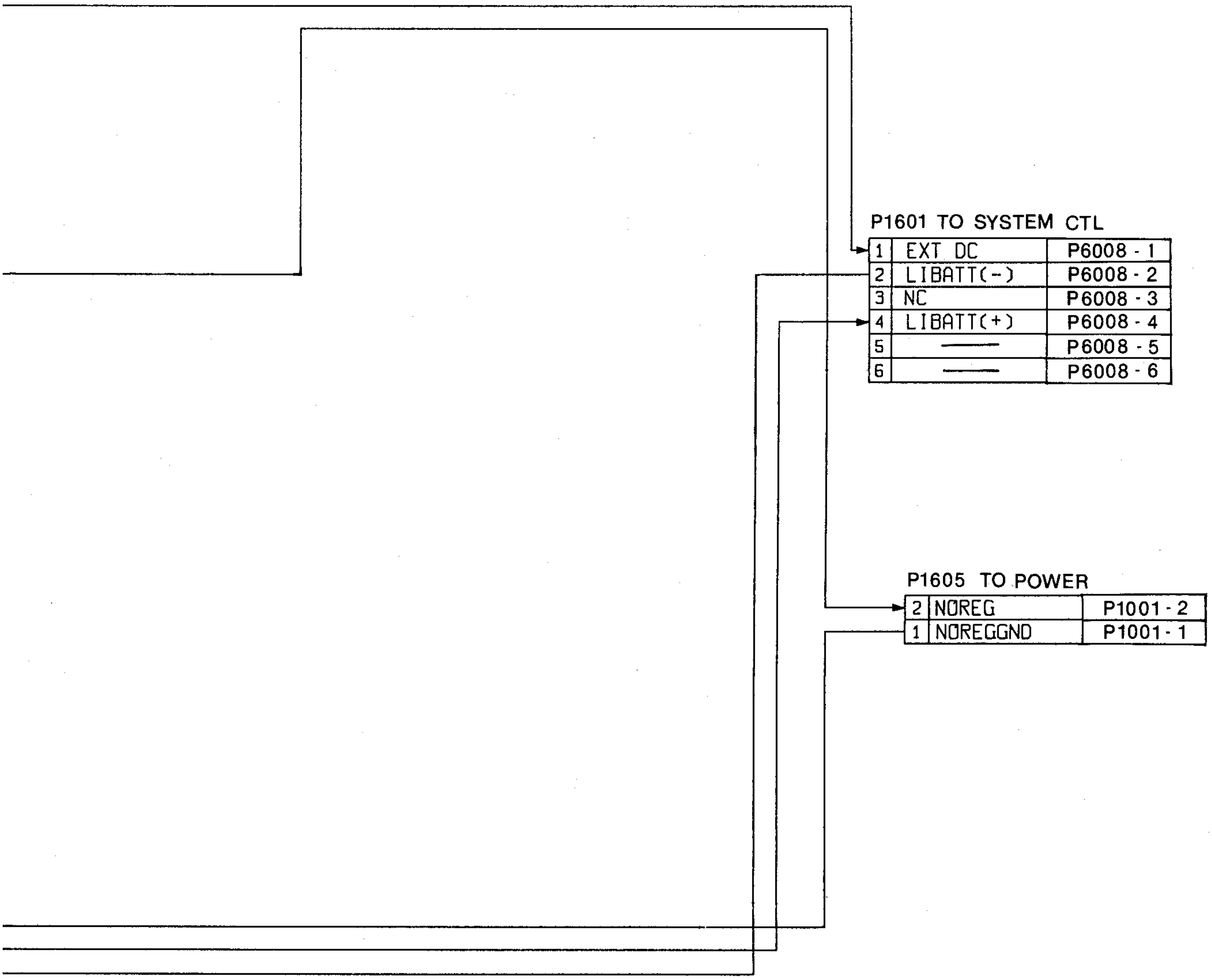
3-26. AV JACK (B) SCHEMATIC DIAGRAM



NOTE: DO

SCH

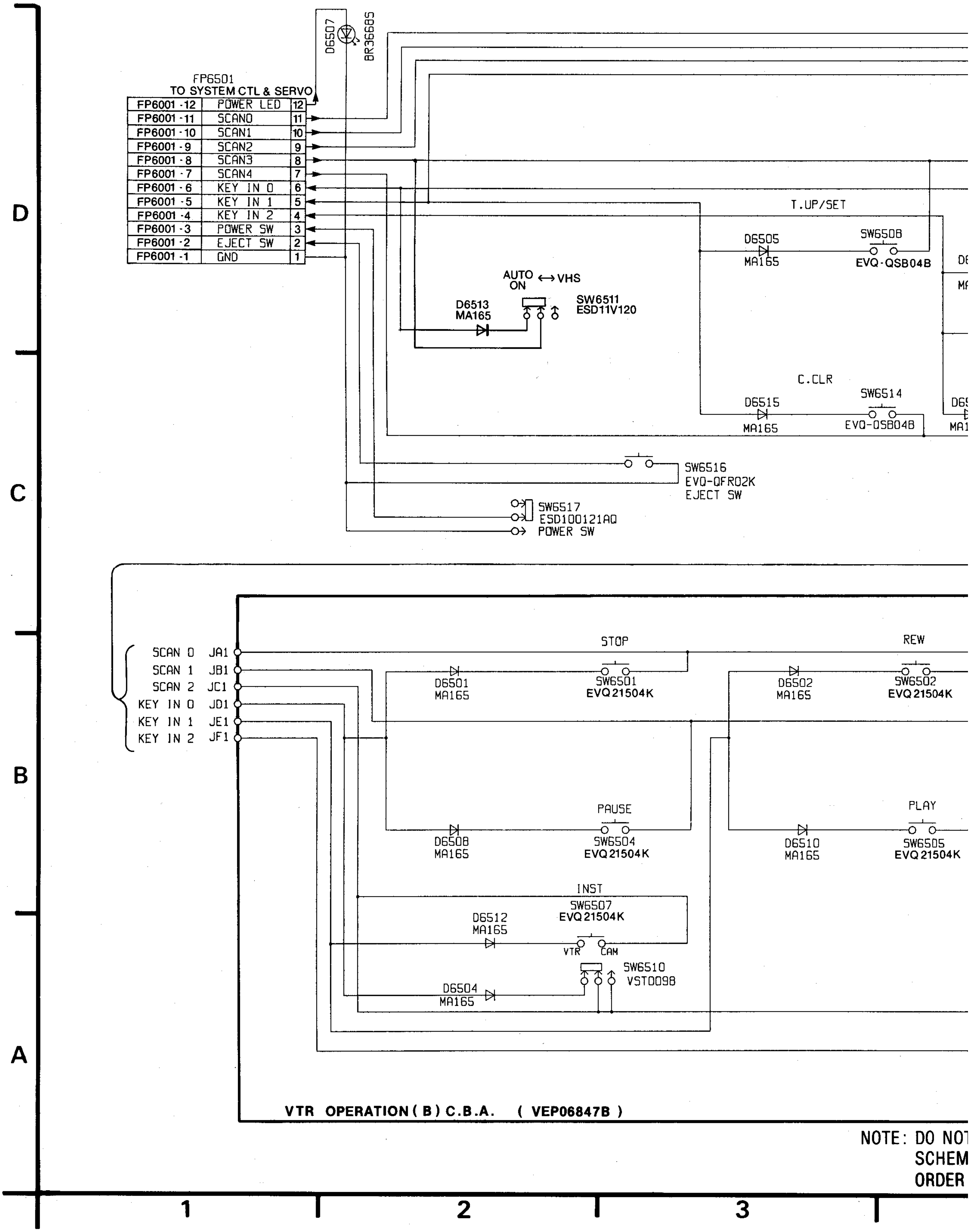
ORD



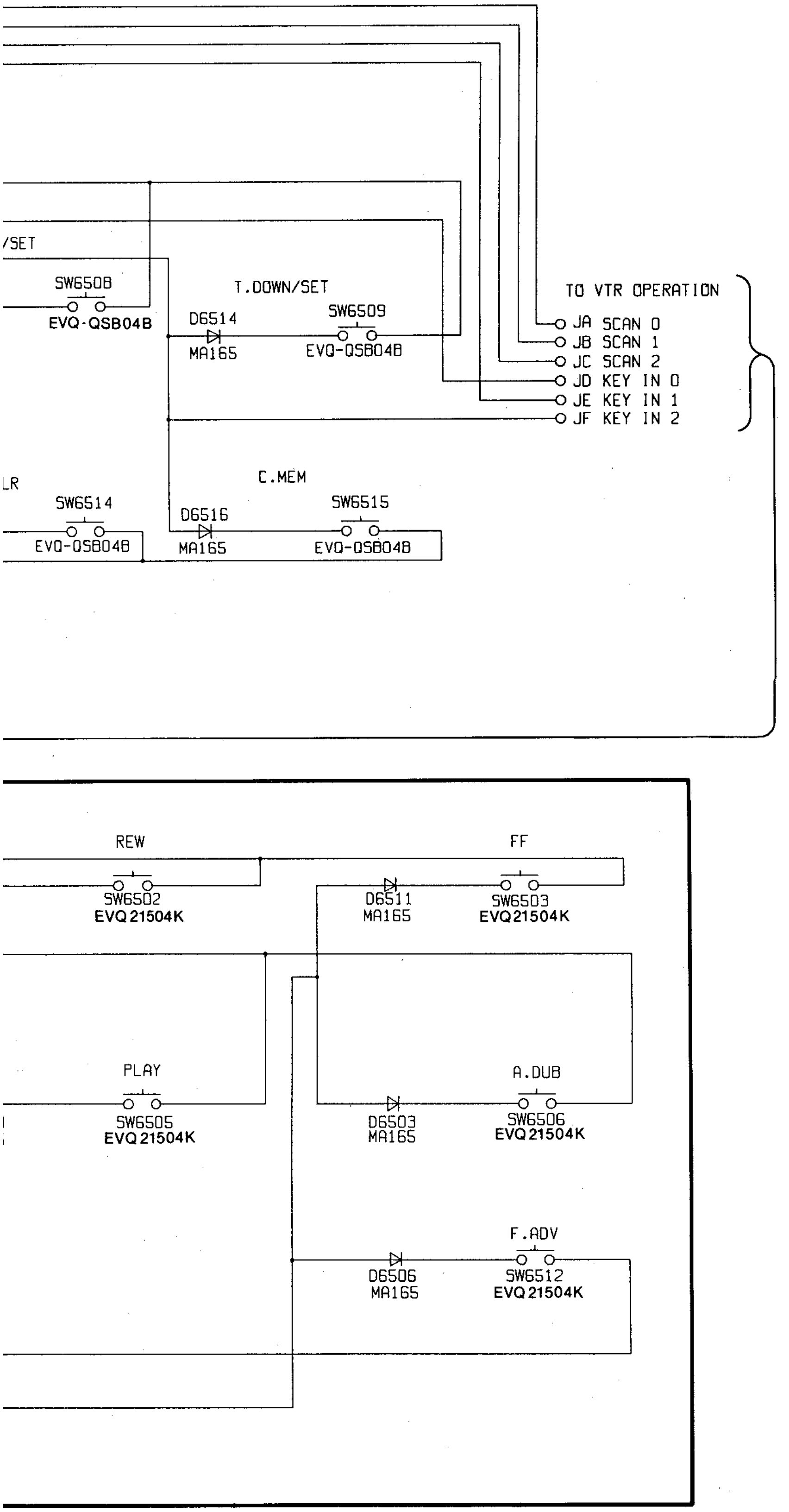
: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

3 4 5

3-28. VTR OPERATION SCHEMATIC DIAGRAM



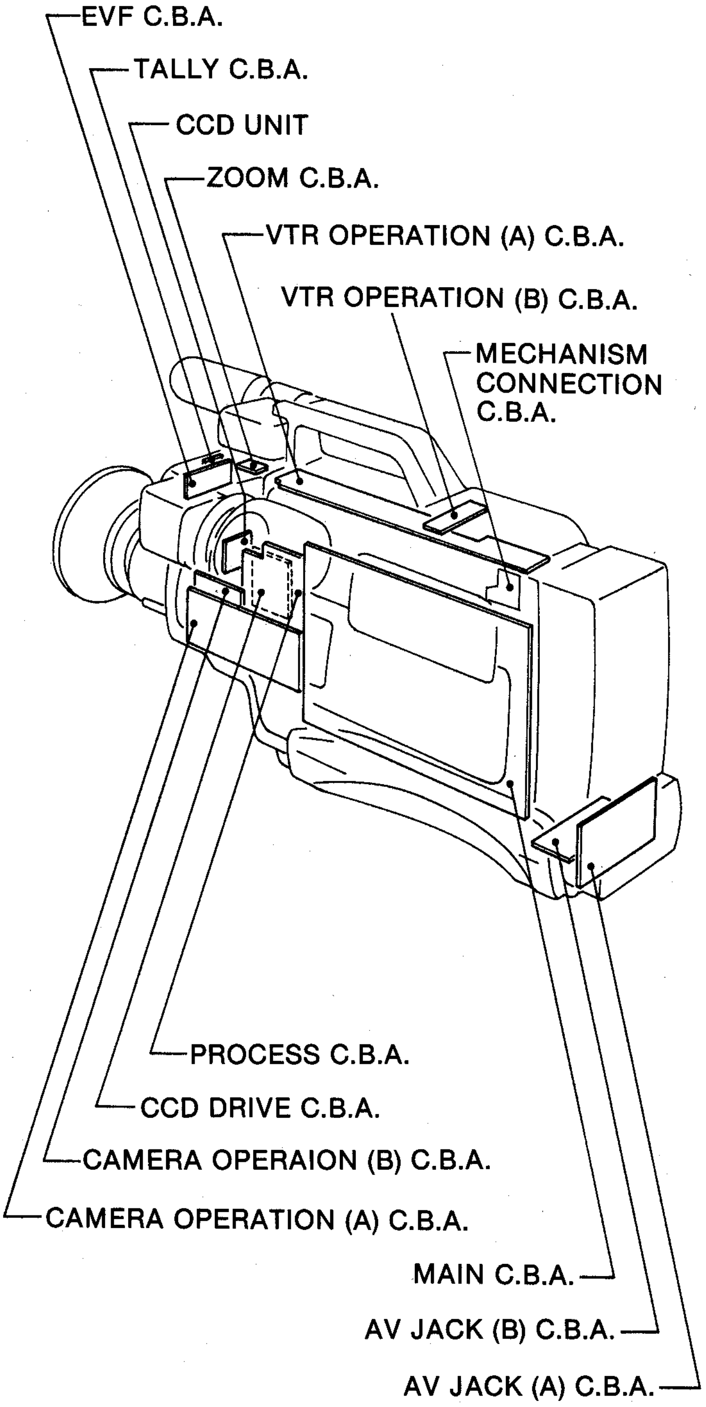
NOTE: DO NO
SCHEM
ORDER



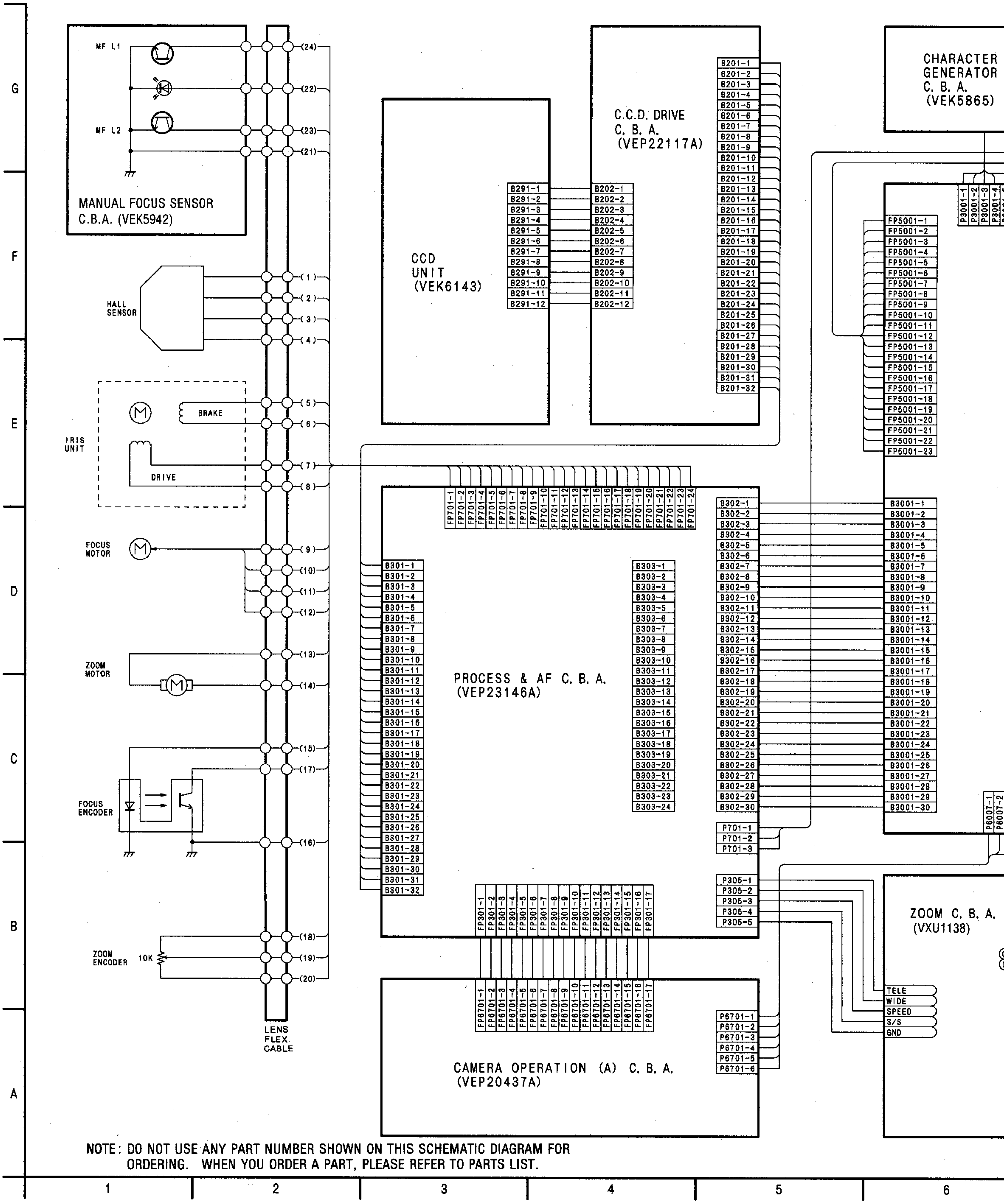
NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS
SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU
ORDER A PART, PLEASE REFER TO PARTS LIST.

4 5

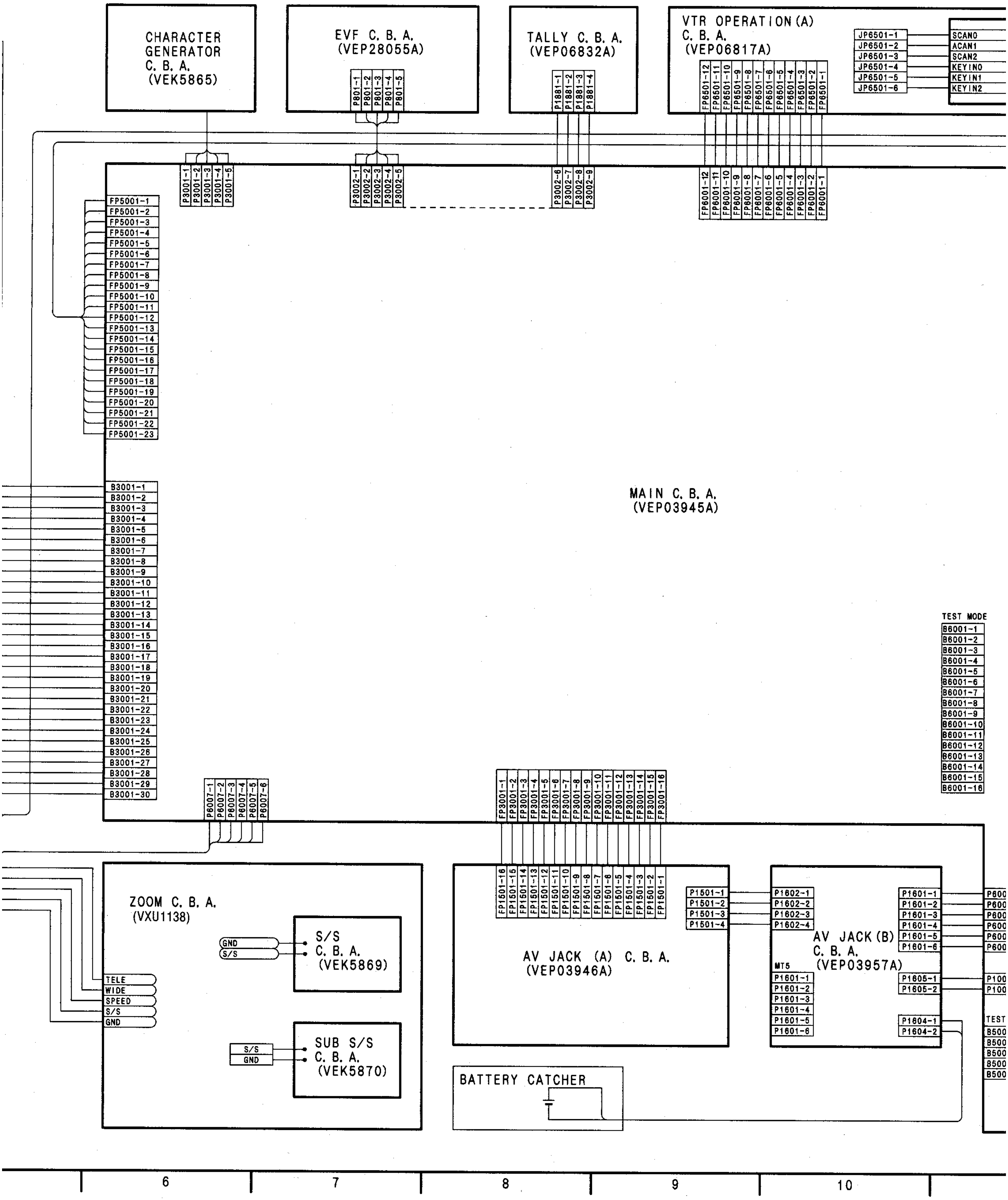
3-30. CIRCUIT BOARD LAYOUT

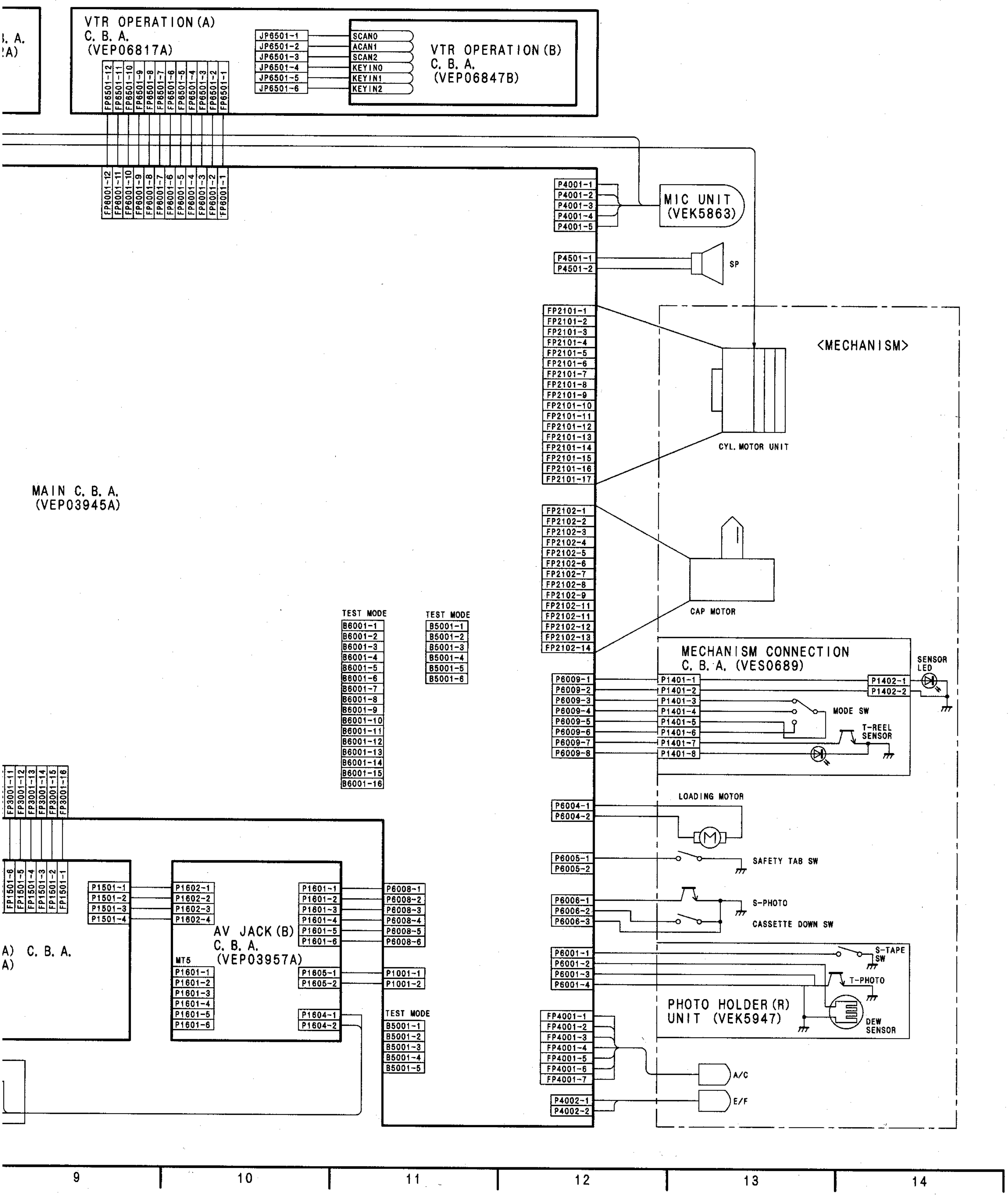


3-31. INTERCONNECTION SCHEMATIC DIAGRAM



NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

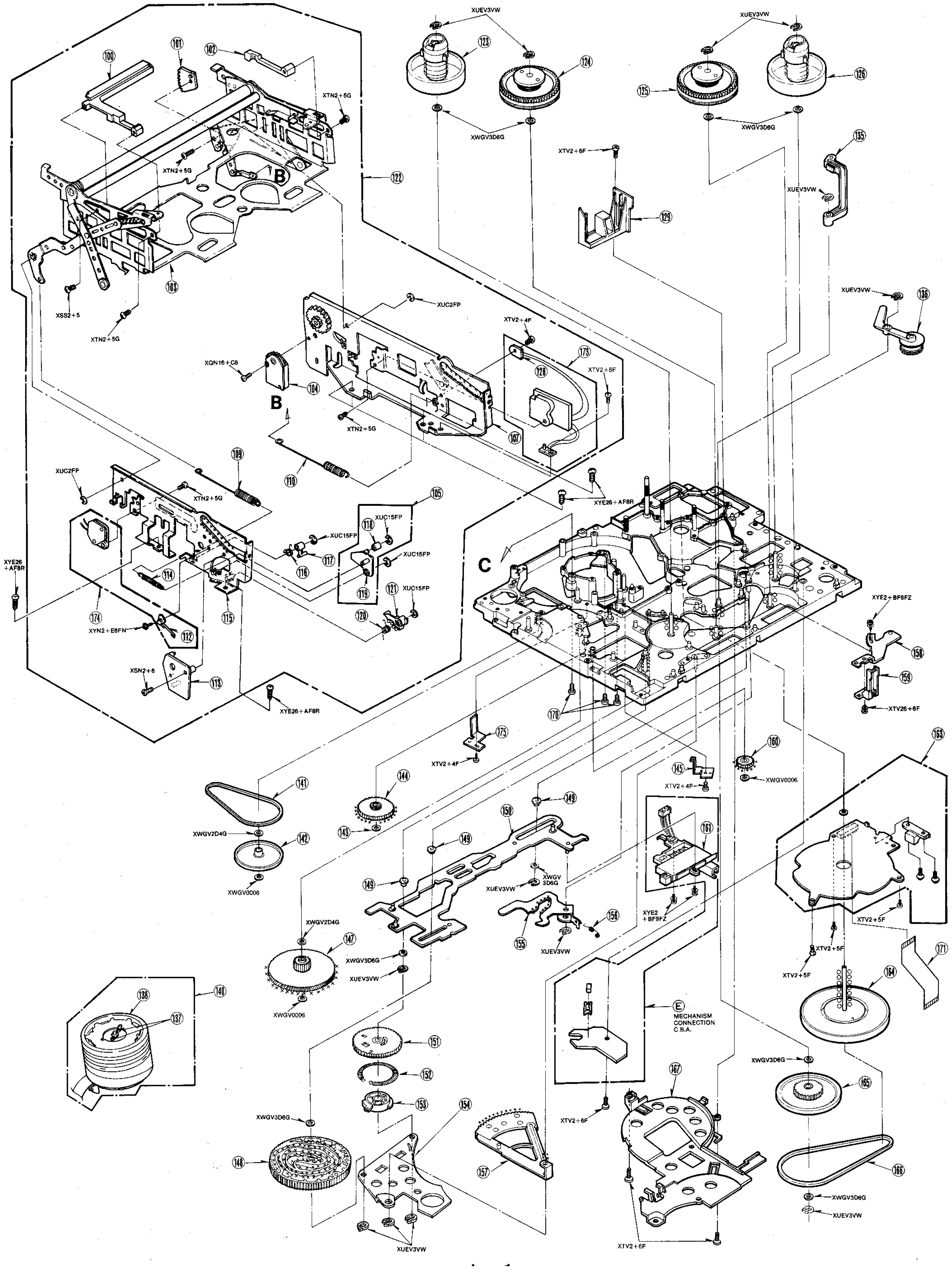

CHARACTER GENERATOR C. B. A. (VEK5865)
EVF C. B. A. (VEP28055A)
P801-1
P801-2
P801-3
P801-4
P801-5
TALLY C. B. A. (VEP06832A)
P1881-1
P1881-2
P1881-3
P1881-4
VTR OPERATION (A) C. B. A. (VEP06817A)
JP6501-1
JP6501-2
JP6501-3
JP6501-4
JP6501-5
JP6501-6
SCAN0
ACAN1
SCAN2
KEYIN0
KEYIN1
KEYIN2
FP6501-12
FP6501-11
FP6501-10
FP6501-9
FP6501-8
FP6501-7
FP6501-6
FP6501-5
FP6501-4
FP6501-3
FP6501-2
FP6501-1
P3001-1
P3001-2
P3001-3
P3001-4
P3001-5
P3002-1
P3002-2
P3002-3
P3002-4
P3002-5
P3002-6
P3002-7
P3002-8
P3002-9
FP6001-12
FP6001-11
FP6001-10
FP6001-9
FP6001-8
FP6001-7
FP6001-6
FP6001-5
FP6001-4
FP6001-3
FP6001-2
FP6001-1
FP5001-1
FP5001-2
FP5001-3
FP5001-4
FP5001-5
FP5001-6
FP5001-7
FP5001-8
FP5001-9
FP5001-10
FP5001-11
FP5001-12
FP5001-13
FP5001-14
FP5001-15
FP5001-16
FP5001-17
FP5001-18
FP5001-19
FP5001-20
FP5001-21
FP5001-22
FP5001-23
MAIN C. B. A. (VEP03945A)
B3001-1
B3001-2
B3001-3
B3001-4
B3001-5
B3001-6
B3001-7
B3001-8
B3001-9
B3001-10
B3001-11
B3001-12
B3001-13
B3001-14
B3001-15
B3001-16
B3001-17
B3001-18
B3001-19
B3001-20
B3001-21
B3001-22
B3001-23
B3001-24
B3001-25
B3001-26
B3001-27
B3001-28
B3001-29
B3001-30
TEST MODE
B6001-1
B6001-2
B6001-3
B6001-4
B6001-5
B6001-6
B6001-7
B6001-8
B6001-9
B6001-10
B6001-11
B6001-12
B6001-13
B6001-14
B6001-15
B6001-16
P6007-1
P6007-2
P6007-3
P6007-4
P6007-5
P6007-6
FP3001-1
FP3001-2
FP3001-3
FP3001-4
FP3001-5
FP3001-6
FP3001-7
FP3001-8
FP3001-9
FP3001-10
FP3001-11
FP3001-12
FP3001-13
FP3001-14
FP3001-15
FP3001-16
ZOOM C. B. A. (VXU1138)
GND
S/S
S/S C. B. A. (VEK5869)
TELE
WIDE
SPEED
S/S
GND
S/S
GND
SUB S/S C. B. A. (VEK5870)
FP1501-16
FP1501-15
FP1501-14
FP1501-13
FP1501-12
FP1501-11
FP1501-10
FP1501-9
FP1501-8
FP1501-7
FP1501-6
FP1501-5
FP1501-4
FP1501-3
FP1501-2
FP1501-1
P1501-1
P1501-2
P1501-3
P1501-4
AV JACK (A) C. B. A. (VEP03946A)
P1602-1
P1602-2
P1602-3
P1602-4
AV JACK (B) C. B. A. (VEP03957A)
MT5
P1601-1
P1601-2
P1601-3
P1601-4
P1601-5
P1601-6
P1601-1
P1601-2
P1601-3
P1601-4
P1601-5
P1601-6
P1605-1
P1605-2
P1604-1
P1604-2
P600
P600
P600
P600
P600
P600
P100
P100
TEST
B500
B500
B500
B500
B500
BATTERY CATCHER
6
7
8
9
10


VTR OPERATION (A) C. B. A. (VEP06817A)
FP6501-12 … FP6501-1
JP6501-1 JP6501-2 JP6501-3 JP6501-4 JP6501-5 JP6501-6
SCAN0 ACAN1 SCAN2 KEYIN0 KEYIN1 KEYIN2
VTR OPERATION (B) C. B. A. (VEP06847B)
FP6001-12 … FP6001-1
P4001-1 P4001-2 P4001-3 P4001-4 P4001-5
MIC UNIT (VEK5863)
P4501-1 P4501-2
SP
FP2101-1 … FP2101-17
<MECHANISM>
CYL. MOTOR UNIT
MAIN C. B. A. (VEP03945A)
FP2102-1 … FP2102-14
CAP MOTOR
TEST MODE
B6001-1 … B6001-16
TEST MODE
B5001-1 … B5001-6
MECHANISM CONNECTION C. B. A. (VES0689)
P6009-1 … P6009-8
P1401-1 … P1401-8
P1402-1 P1402-2
SENSOR LED
MODE SW
T-REEL SENSOR
LOADING MOTOR
P6004-1 P6004-2
M
P6005-1 P6005-2
SAFETY TAB SW
P6006-1 P6006-2 P6006-3
S-PHOTO
CASSETTE DOWN SW
P6001-1 P6001-2 P6001-3 P6001-4
S-TAPE SW
T-PHOTO
PHOTO HOLDER (R) UNIT (VEK5947)
DEW SENSOR
FP4001-1 … FP4001-7
A/C
P4002-1 P4002-2
E/F
FP3001-11 … FP3001-16
FP1501-6 … FP1501-1
P1501-1 P1501-2 P1501-3 P1501-4
P1602-1 P1602-2 P1602-3 P1602-4
AV JACK (B) C. B. A. (VEP03957A)
MT5
P1601-1 … P1601-6
P1605-1 P1605-2
P1604-1 P1604-2
P6008-1 … P6008-6
P1001-1 P1001-2
TEST MODE
B5001-1 … B5001-5
A) C. B. A.
A)
9
10
11
12
13
14

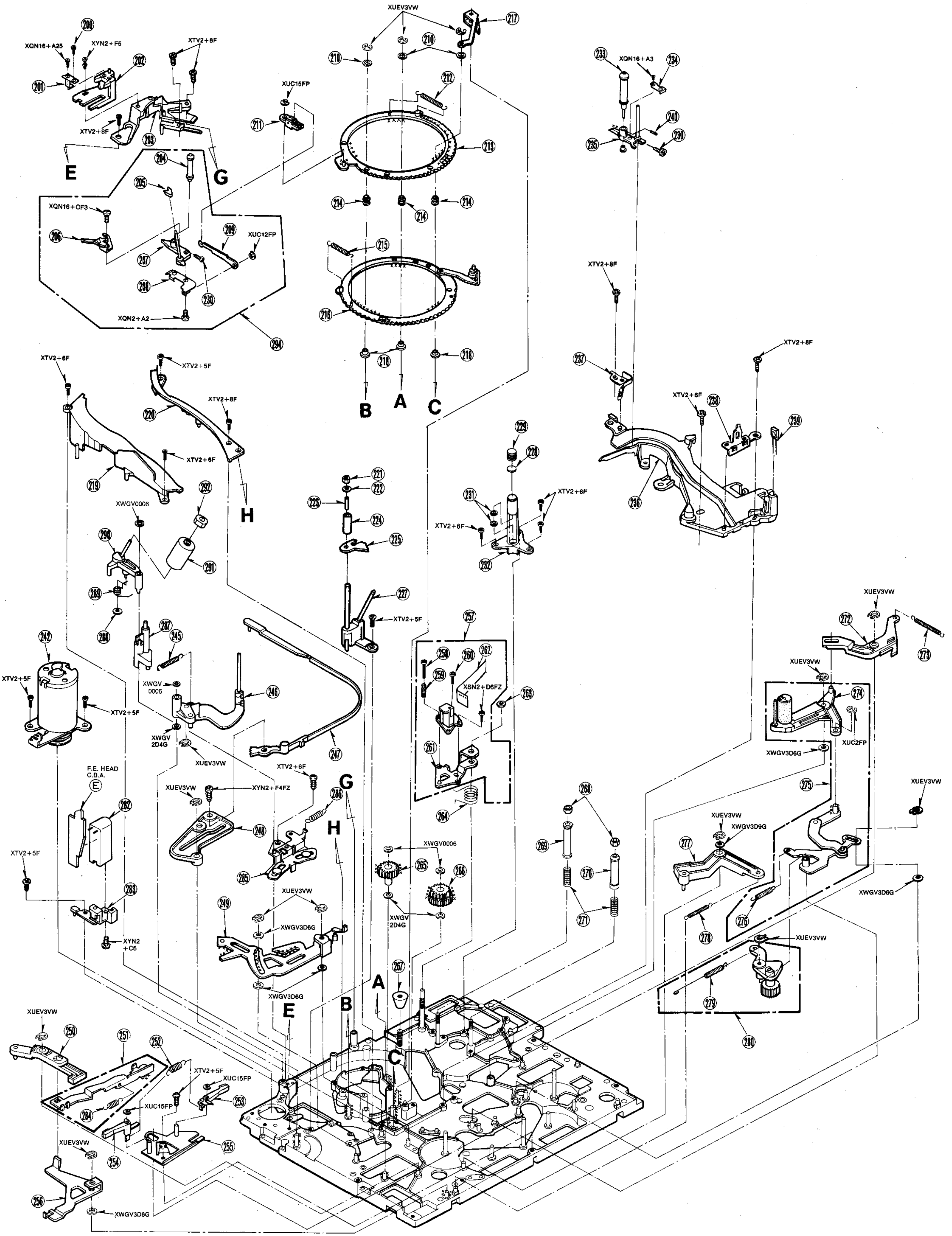
SECTION 4
EXPLODED VIEWS & PARTS LISTS

4-1. EXPLODED VIEWS

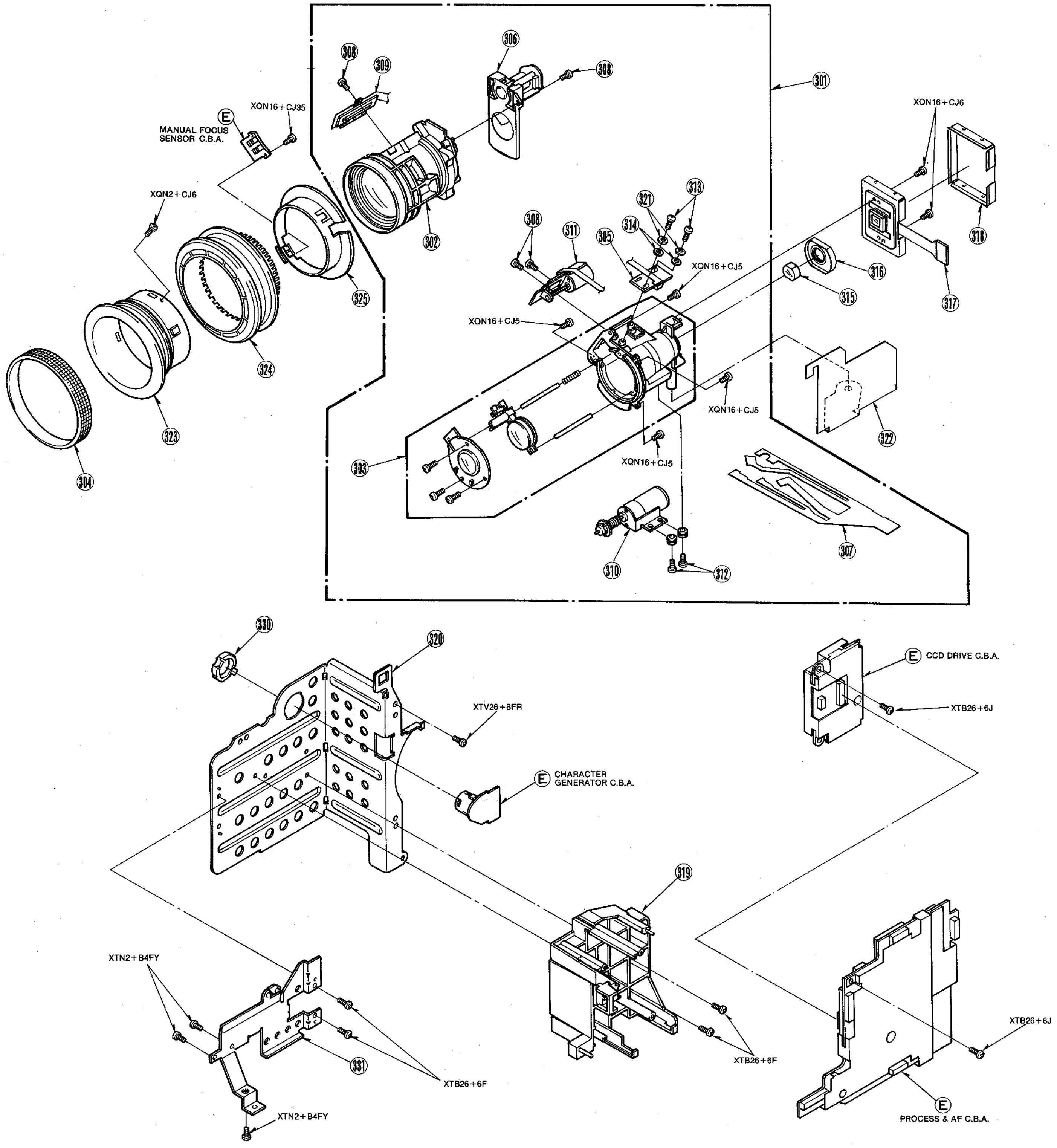
❶ VTR MECHANISM SECTION (1)



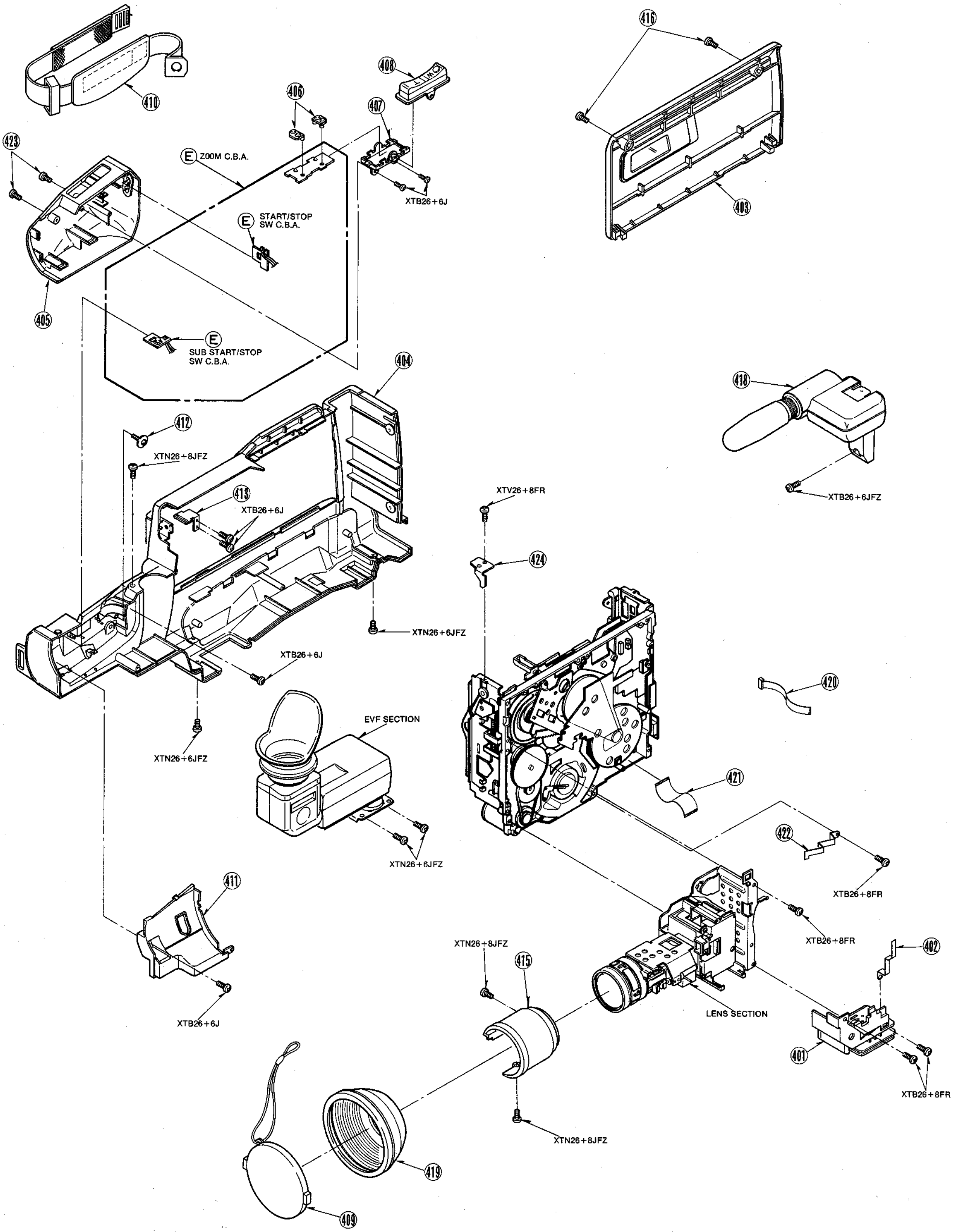
❷ VTR MECHANISM SECTION (2)



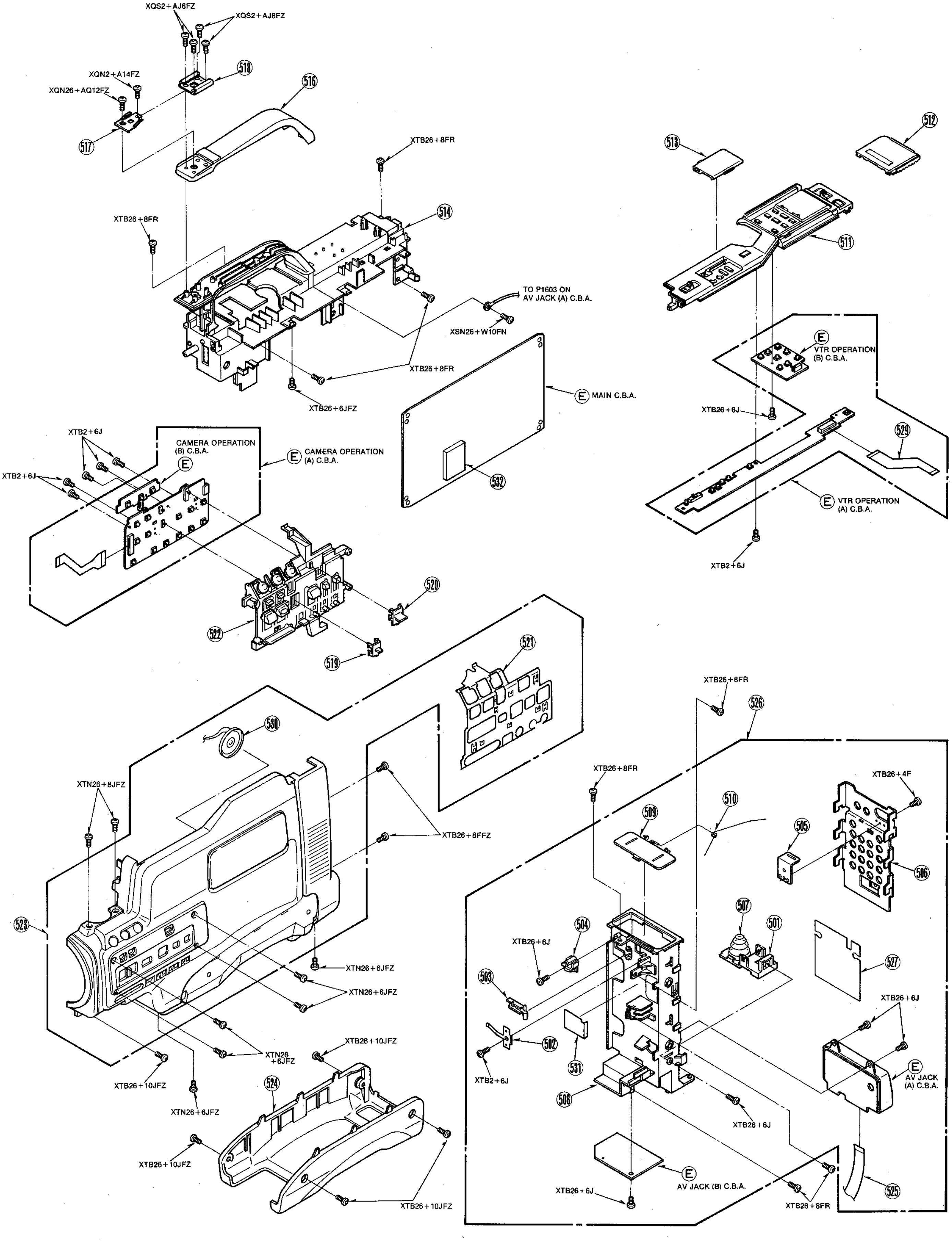
❸ CAMERA LENS SECTION



❹ FRAME & CASING PARTS SECTION (1)



❺ FRAME & CASING PARTS SECTION (2)



❻ EVF SECTION